INITIAL STUDY

HETCH HETCHY WATER TREATMENT PROJECT CHLORAMINE CONVERSION

November 19, 1999

City and County of San Francisco
San Francisco Planning Department

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: November 19, 1999

Lead Agency: City and County of San Francisco, Planning Department
1660 Mission Street, 5th Floor, San Francisco, CA 94103

Agency Contact Person: Paul Deutsch **Telephone:** (415) 558-6383

Project Title: 1998.898E – Hetch Hetchy Water Treatment Project - Chloramine Conversion

Project Sponsor: San Francisco Public Utilities Commission (SFPUC)

Contact Person: Steve Leonard / Patty Mallett (415) 554-8978 / 554-8994

Project Address: SFPUC Water System from Tesla Portal to Harry W. Tracy Water Treatment Plant
Assessor's Block and Lot: Not Applicable
City and County: San Francisco, San Mateo, Santa Clara, Alameda, and San Joaquin Counties

Project Description: The purpose of the Hetch Hetchy Water Treatment Project--Chloramine Conversion is to improve the reliability of the SFPUC drinking water supply system to meet water quality requirements of the federal Stage 1 Disinfectant/Disinfection By-Products Rule, promulgated in 1998. Chlorine, which is currently used to disinfect the water supply system, has historically met water quality requirements for pathogen inactivation; however, use of chlorine as a residual disinfectant is known to result in the formation of low levels of halogenated compounds, known as disinfection by-products, some of which are suspected carcinogens. In February 1999, the Stage 1 Disinfectant/ Disinfection By-Products Rule became effective and lowered the allowable levels of disinfection by-products in drinking water. The Rule requires public water systems to adopt and implement the requirements of this regulation within two years from promulgation, with a possible extension of up to two additional years if approved. The SFPUC is proposing that the residual disinfectant for the SFPUC water supply system be converted from chlorine to chloramine, a combination of chlorine and ammonia. Use of chloramine as a residual disinfectant would reliably lower the levels of disinfection by-products to levels below the maximum levels mandated in this new regulation. The Chloramine Conversion Project would require construction of facilities at multiple locations along the SFPUC water system. The types of facilities would include: chlorine and ammonia feed systems; dechlorination and dechloramination facilities; chemical storage systems; and ancillary roadways and pipelines. Most construction would occur at the following locations:

1. Tesla Portal in San Joaquin County, south of Tracy,
2. San Antonio Pump Station in the Sunol Valley in Alameda County,
3. Pulgas Water Temple in San Mateo County, and
4. Harry W. Tracy Water Treatment Plant in San Mateo County.

In addition, the conversion to chloramine may require physical and/or operational modifications to the water distribution systems throughout the SFPUC service area, including those in the City and County of San Francisco and those in the Peninsula and East and South Bay areas served by the SFPUC system.

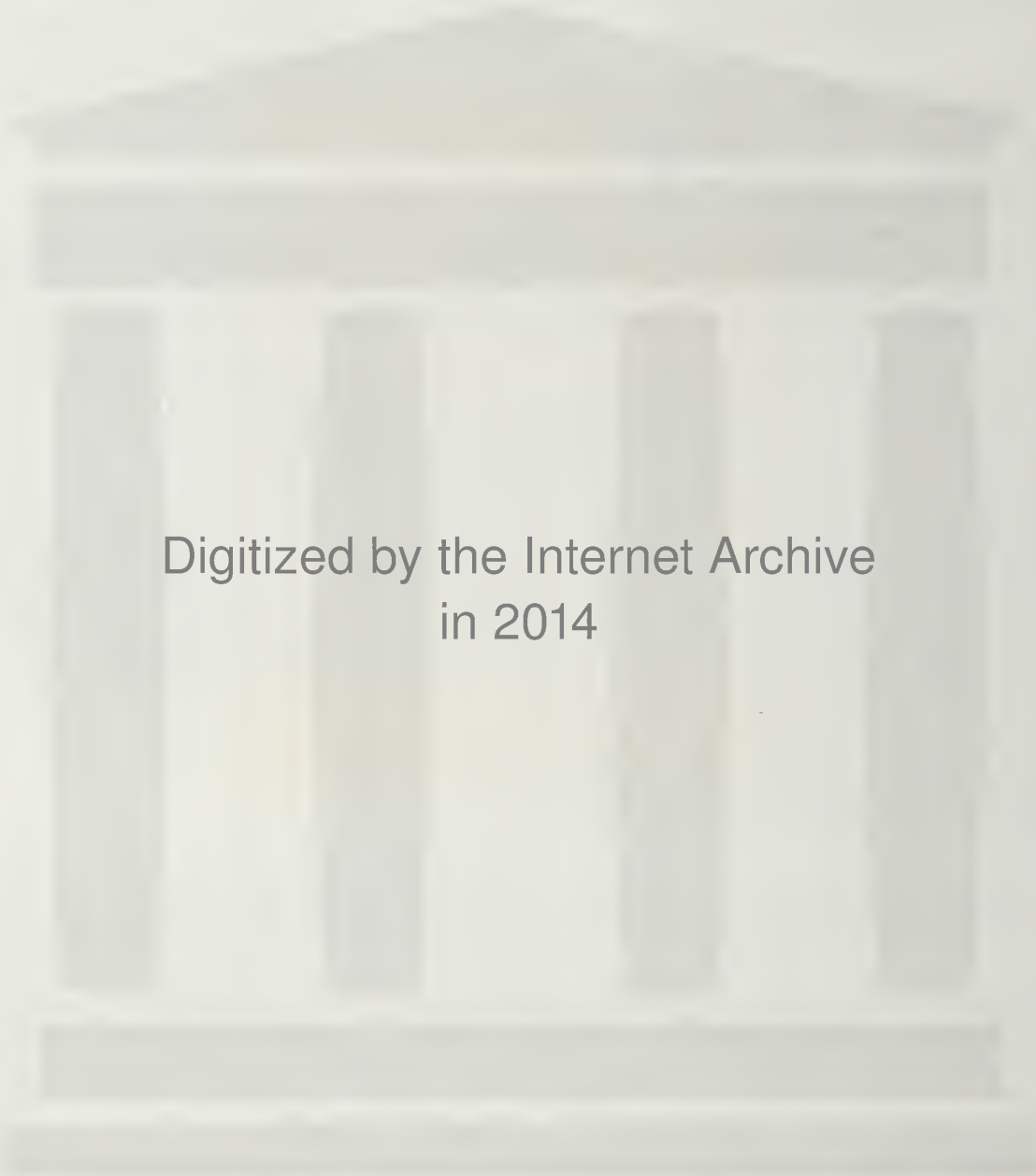
THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 (Determining Significant Effects), and 15065 (Mandatory Findings of Significance), and the following reasons, as documented in the Initial Study for the project, which is attached.

The Deadline for Filing an Appeal to the Planning Commission of this Determination that an EIR is required is December 10, 1999. An appeal requires: 1) a letter specifying the grounds for appeal, and 2) a $209.00 filing fee.

The public is invited to comment on the scope of the EIR. Such comments must be received by December 20, 1999 to ensure consideration in preparing the Draft EIR.

Paul A. Deutsch for

HILLARY E. GITELMAN, Environmental Review Officer



Hetch Hetchy Water Treatment Project--Chloramine Conversion
Initial Study
1998.898E

I. PROJECT DESCRIPTION

A. BACKGROUND

The San Francisco Public Utilities Commission (SFPUC) is responsible for providing a safe and reliable drinking water supply for 2.4 million customers in San Francisco and portions of San Mateo, Santa Clara, and Alameda counties. This water supply, referred to as the SFPUC water supply system, originates from three sources: Tuolumne River in the Sierra Nevada mountains, local runoff from watersheds in Alameda and Santa Clara counties, and local runoff from watersheds in San Mateo County. This water is conveyed about 150 miles through a series of aqueducts, pipelines, tunnels, and reservoirs to the SFPUC service area in the Bay Area.

The SFPUC has conducted extensive studies on the SFPUC water supply system for over a decade to determine the treatment processes and facilities needed to meet existing and anticipated state and federal drinking water regulations.[1] The studies included extensive water quality testing as well as identification and evaluation of alternative treatment methods and facilities needed for improvements related to disinfection, corrosion control, ozonation, and filtration processes. Results of one of the studies determined that use of the current disinfection method for the water supply system would not reliably meet the federal Disinfectant/Disinfection By-Products Rule. That study concluded that the residual disinfectant should be converted from chlorine to chloramine to reliably lower the levels of disinfection by-products to levels below the maximum levels mandated in this new regulation. The resulting improvement project, the Hetch Hetchy Water Treatment Project--Chloramine Conversion, is the subject of this Initial Study and forthcoming Environmental Impact Report (EIR).

B. PROJECT OBJECTIVES

The overall purpose of the Hetch Hetchy Water Treatment Project--Chloramine Conversion is to improve the reliability of the SFPUC drinking water supply system to meet water quality requirements of the Stage 1 Disinfectant/Disinfection By-Products Rule, a federal drinking water regulation adopted by the U.S. Environmental Protection Agency (USEPA), which became effective in 1999. The proposed project is designed to comply with these regulations in a cost-effective, environmentally sensitive manner, with the minimum number of facilities needed to be compatible with the existing overall water supply system.

In addition, an ancillary project objective is to comply with the existing California Regional Water Quality Control Board requirements that prohibit discharge of chlorine or other substances that are toxic to aquatic organisms into reservoirs or creeks. The SFPUC is currently in the process of converting or

[1] San Francisco Water Team, *Hetch Hetchy Water Treatment Project, Phase 1A Preliminary Engineering Report*, prepared for San Francisco Public Utilities Commission, August 1996.

constructing facilities to remove chlorine from the drinking water supply prior to discharge to surface water bodies in order to meet these discharge requirements. Since chloramine is more persistent than chlorine and may pose prolonged toxic conditions to aquatic organisms compared to chlorine, it would be even more important after the conversion to chloramine to remove chlorine from the water at all sites where chloraminated SFPUC system water may be discharged to the environment. Therefore, the purpose of some of the proposed facilities is to protect the environment from chloraminated water discharges in addition to improving water quality and providing reliability to meet water quality regulations.

C. OVERVIEW

Currently, the SFPUC water supply system is disinfected by free chlorine applied in the form of sodium hypochlorite. This disinfection method, while historically meeting water quality requirements for pathogen inactivation and controlling transmission of waterborne disease, results in the formation of low levels of halogenated compounds, known as disinfection by-products (DBPs), some of which are suspected carcinogens.

In February 1999, the federal Stage 1 Disinfectant/Disinfection By-Products Rule became effective and lowered the allowable levels of disinfection by-products in drinking water. The SFPUC determined that in order to reliably meet the requirements of this regulation, the system should convert from chlorination (i.e., the process of adding chlorine to water) to chloramination (i.e., the process of adding chlorine and ammonia to water to form chloramines) for residual disinfection. Conversion to chloramine would also help meet the federal Total Coliform Rule requirements for overall disinfection and reliability for public health protection. Chlorine for primary disinfection followed by chloramine for residual disinfection is currently being used successfully by numerous utilities nationwide, including these in the Bay Area: East Bay Municipal Utility District, Alameda County Water District, Santa Clara Valley Water District, Contra Costa Water District, and Marin Municipal Water District.

The SFPUC conducted conceptual engineering on chloramine conversion of the water supply system and identified a preferred alternative for achieving the project objectives.[2] The preferred alternative, also referred to as the proposed project in this Initial Study, would require construction of related facilities of limited size at locations in San Francisco, San Mateo, Alameda, and San Joaquin counties. Because the SFPUC water supply system extends over 150 miles, the project objectives could not be achieved by constructing new facilities at one centralized location. In addition to the facilities needed for chloramine conversion, the proposed project includes new facilities to comply with discharge requirements of the California Regional Water Quality Control Board for discharges affected by the chloramine conversion. The preferred alternative includes the minimum number of facilities that, in combination, would be required to meet the Stage 1 Disinfectant/Disinfection By-Products Rule as well as the associated discharge requirements of the California Regional Water Quality Control Board.

2 San Francisco Water Team, *Hetch Hetchy Water Treatment Project Chloramine Conceptual Design Report*, Final Draft, prepared for the San Francisco Public Utilities Commission, March 1999.

In addition to these site-specific project components, the chloramine conversion process would directly result in the need to improve circulation in water distribution systems and large treated water reservoirs in the SFPUC service area. Within the City and County of San Francisco, the chloramine conversion would require operational modifications and minor improvements to existing chlorine feed stations for local reservoirs operated by the SFPUC's City Distribution Division (CDD). In areas outside the City, the project would affect the water supply systems for members of the Bay Area Water Users Association (BAWUA) who purchase water wholesale from the SFPUC. As part of the proposed project, the SFPUC will coordinate with the CDD operations and BAWUA member agencies to help prepare them prior to start-up of the chloramine conversion project. BAWUA member agencies will need to evaluate their individual systems to assure they are adequately prepared for the chloramine conversion.

Design and construction of proposed facilities is estimated to require about two years, with project start-up scheduled for mid- to late 2002. The components of the proposed project are described in more detail below.

D. PUBLIC AND BAWUA AGENCIES OUTREACH

While implementation of chloramine conversion would increase reliability in meeting drinking water standards and improve public health protection, the associated change in water quality would result in various indirect effects to the 2.4 million customers in the SFPUC service area. The SFPUC will conduct a formal public outreach program as part of the Hetch Hetchy Water Treatment Project--Chloramine Conversion to notify, inform, and help prepare the 2.4 million customers in the SFPUC service area. The formal public outreach program will occur primarily during the year prior to conversion. The public outreach program will target kidney dialysis facilities (as required by the California Department of Health Services) and "sensitive" users that can be affected by chloraminated water, including private and commercial owners of aquariums and fishponds. The SFPUC will also contact the major media to facilitate outreach to the general public.

The public outreach program is necessary to inform the public of the indirect effects of chloramine conversion and to help them prepare for the change in water quality. Most critically, the change in residual disinfectant would result in potentially negative effects to kidney dialysis facilities. The California Department of Health Services requires that all kidney dialysis facilities be upgraded to include chloramine removal equipment and be inspected and certified by the California Department of Licensing and Certification prior to systemwide conversion to chloramine, but not more than one year before conversion begins. In addition, due to the toxic effects of chloramine to aquatic life, aquarium and fishpond owners would need to institute pretreatment measures to remove chloramine as part of their operational practices. Other sensitive businesses and industries, such as those that currently remove chlorine from their process water, may also be affected by chloramine and could require additional treatment for removal of chloramines in their operations. The general public may perceive slight changes in taste and odor, associated mainly with a reduction in the chlorine odor. The SFPUC is developing the formal public outreach program for chloramine conversion concurrently with the environmental review process. For further information concerning the chloramination project and process, call the SFPUC project information line at 415-557-6738.

In addition, the SFPUC has initiated coordination and education to assist the BAWUA agencies to plan and prepare for the conversion. The SFPUC participates regularly in the BAWUA Water Quality Committee meetings and is conducting a series of workshops on chloramine conversion for the member agencies. The BAWUA agencies' outreach program will be expanded as the conversion date approaches. However, it is expected that BAWUA agencies would share in the public outreach and notification to water customers in their respective service areas.

E. PROPOSED TREATMENT PROCESSES

1) PROPOSED DISINFECTION METHOD—ADDITION OF CHLORINE AND AMMONIA

The SFPUC water supply system currently uses chlorine in the form of liquid sodium hypochlorite as the initial or primary disinfectant to inactivate bacteria, viruses, and pathogens; it then maintains lower levels of residual chlorine in the water to prevent re-growth of bacteria or pathogens in the transmission and distribution system. While chlorination provides rapid and effective disinfection to meet the disinfection requirements for bacteriological water quality standards, chlorination results in formation of disinfection by-products. Thus, to meet the new, more stringent standards for disinfection by-products of the Disinfectant/Disinfection By-Products Rule, the SFPUC proposes to implement a sequential disinfection strategy, combining chlorination for primary disinfection with chloramination for residual disinfection.

Chloramine is a combination of chlorine and ammonia. Similar to free chlorine, it acts as a disinfectant, but it is a more stable compound than chlorine, persists longer in the distribution system, and forms very low levels of disinfection by-products. However, chlorine is a much stronger biocide than chloramine and would still be required for primary disinfection. The proposed sequential disinfection method was determined to provide the most reliable disinfection of the SFPUC water system to achieve compliance with existing and proposed future water quality regulations.[3]

For the SFPUC water supply system, the proposed project would involve injecting and removing chemicals at various points along the system to meet the project objectives. The following subsection describes the existing and proposed treatment processes involving chemical addition and removal.

There would be no changes to the SFPUC water supply system, which originates in the Sierra Nevada mountains, until the water flows to the Tesla Portal on the west side of the San Joaquin Valley near the city of Tracy. At the Tesla Portal, the proposed project would involve replacing and upgrading the existing primary disinfection storage and feed facilities. Chlorine as sodium hypochlorite would continue to be injected to the water supply to meet the primary disinfection requirements. As the water flows west toward the Bay Area, ammonia would be injected at a new facility in the Sunol area in Alameda County; the ammonia would combine with the chlorine to form chloramine as a residual disinfectant. Additional chlorine would be added as needed to compensate for chlorine losses along the

3 San Francisco Water Team, *Hetch Hetchy Water Treatment Project, Phase 1A Preliminary Engineering Report*, prepared for San Francisco Public Utilities Commission, August 1996.

system and to maintain required levels of residual chloramine for disinfection to continue in the distribution system.

After the water flows west to the Bay Area, most of the disinfected water is conveyed in pipelines to the distribution systems that supply water customers. About 15 percent of the total annual water supply, however, is discharged to the Crystal Springs Reservoir in San Mateo County and stored to meet seasonal supply requirements. Water from Crystal Springs Reservoir is transferred to the San Andreas Reservoir and then treated at the Harry W. Tracy Water Treatment Plant near the town of San Bruno. The proposed project would modify the existing processes at the treatment plant by adding ammonia injection facilities. These facilities would inject ammonia into the water supply to form chloramine as the residual disinfectant, prior to distribution to water customers along the Peninsula and in San Francisco.

This proposed sequential disinfection process would meet the federal disinfection requirements of the Total Coliform Rule, the Enhanced Surface Water Treatment Rule, and the Stage 1 Disinfectant/ Disinfection By-Products Rule, thereby providing a high level of public health protection. The facilities required to perform this process are described in more detail below.

2) PROPOSED REMOVAL OF CHLORINE AND AMMONIA

The SFPUC water supply system includes a number of locations where disinfected drinking water is either intentionally discharged or may accidentally overflow into local surface water bodies. The California Regional Water Quality Control Board (RWQCB) prohibits the discharge of both chlorinated and chloraminated water to surface waters. Chlorine, present in both chlorinated and chloraminated waters, is toxic to aquatic life, and the RWQCB requires that all residual chlorine be removed from chlorinated and chloraminated water before the water is acceptable for discharge to surface waters. With chloraminated water, after the chlorine is removed, the ammonia portion of the chloramine is still present. The RWQCB has also set limits for ammonia levels in receiving waters, since under certain conditions, ammonia can be toxic to aquatic life. The toxicity of ammonia, however, is dependent upon the pH range of the receiving water. In the majority of cases, the pH of the receiving water body is within the desired range to limit or avoid toxic conditions, and discharge of ammoniated water to surface waters can be acceptable.

However, if ammoniated water is discharged to water bodies that are nitrogen-limited (i.e., the level of nitrogen is the critical nutrient in determining algae growth), the additional ammonia can contribute to the potential for algal blooms and eutrophication conditions in lakes and streams. Therefore, the SFPUC is conducting water quality studies to determine if Crystal Springs Reservoir is nitrogen-limited and to identify the potential effects from the additional ammonia-nitrogen that would be present in the dechloraminated discharge. If the studies indicate that Crystal Springs Reservoir is nitrogen limited and that the additional ammonia from chloraminated water would prove detrimental to water quality, then the SFPUC proposes to remove ammonia as well as chlorine from this discharge. If the studies are inconclusive about any detrimental effects from the nitrogen, then only chlorine would be removed from the water, and the pH would be adjusted to prevent ammonia toxicity, and the proposed dechloramination facility, described in the next section, would not be constructed.

To protect local surface waters, the proposed project includes permanent dechlorination facilities at overflow points along the system, such as Alameda East and Alameda West Shafts in the Sunol Valley, to replace the currently used portable dechlorination facilities. These facilities would typically use sodium thiosulfate or another type of dechlorination chemical (e.g., citric acid or sodium bisulfite) to remove the chlorine before water can be discharged to surface waters.

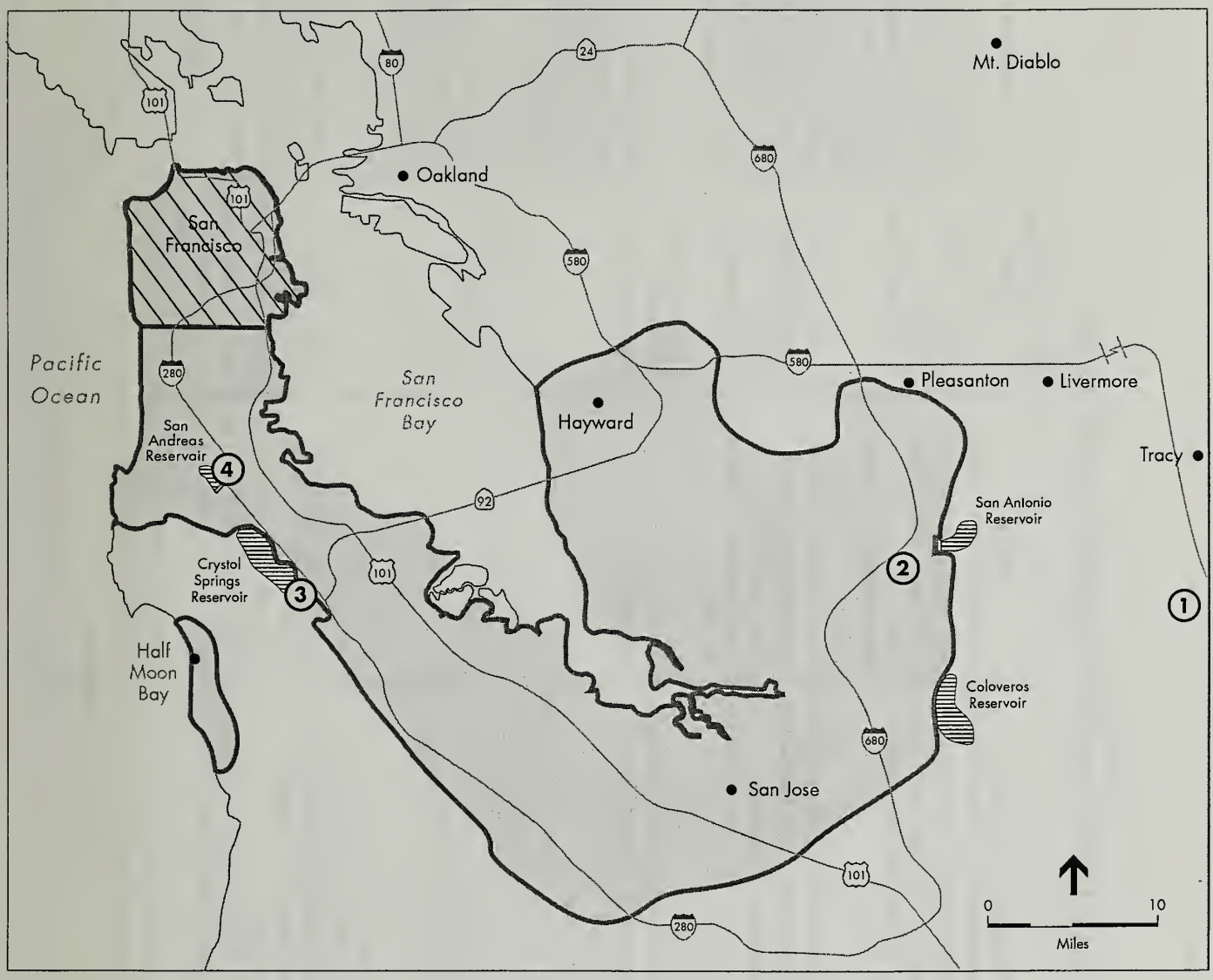
At the Crystal Springs Reservoir, the SFPUC proposes to remove chlorine as well as to reduce ammonia levels prior to discharge of the water supply to the reservoir in order to protect surface water quality. Therefore, the proposed project includes facilities for dechloramination (i.e., removal of chlorine and reduction of ammonia) from the water prior to discharge to Crystal Springs Reservoir. Dechloramination is a two-step process that involves first lowering the ammonia levels and then removing the chlorine. To lower the ammonia levels, an acidic compound (e.g., sulfuric acid, hydrchloric acid, or carbon dioxide) would first be added to lower the pH, which is needed for chemical efficiency in the next step; supplemental sodium hypochlorite would then be added to oxidize the ammonia portion of the chloramine to release nitrogen gas, thereby lowering the ammonia concentration. This process would be followed by addition of a dechlorinating chemical, typically sodium bisulfite, to convert all the chlorine to chloride, an inert, nontoxic form. The dechloraminated water would then be discharged to Crystal Springs Reservoir.

F. PROPOSED NEW FACILITIES – PROJECT-LEVEL ANALYSIS

The Hetch Hetchy Water Treatment Project--Chloramine Conversion would require construction of new facilities at multiple locations along the SFPUC water supply system. Facility locations are indicated in Figure 1, and Table 1 summarizes the physical facilities required at each site. Physical environmental effects associated with construction and operation of the facilities described in this section are analyzed in this Initial Study at a project level, which means that detailed site-specific analysis of potential effects is provided for each project location. For those environmental topics requiring further environmental review in the EIR, these project components will also be analyzed at a project level in the EIR.

All proposed sites for the SFPUC improvements are located on lands owned by the City and County of San Francisco, and at all sites, proposed facilities are by necessity located in proximity to existing facilities related to the water system. The new facilities or modifications to existing facilities would occur at four main locations and are described below from east to west, following the direction of the water flow:

1) Tesla Portal off of Vernalis Road in San Joaquin County, near Tracy. A new chlorine storage and feed facility would be constructed at a vacant site near the existing chlorine feed system, about 100 feet east of the watershed keeper's residence. This facility would replace the existing chlorine feed facility, which would be abandoned. The new facility would be about 100 feet wide by 150 feet long and 30 feet high; it would accommodate increased chlorine storage as well as chemical metering pumps and related equipment. The new facility would maintain the existing level of chlorine added to the water supply as the primary disinfectant. About 300 linear feet of 6-inch-diameter buried double-contained pipe would be installed to convey the liquid chlorine to the water supply. The new facility would have upgraded seismic and chemical storage and handling design features. A new loop road, about 1,200 feet long and 20 feet wide, would replace the existing road to



FACILITY LOCATIONS

(1) Tesla Portal Site

(2) San Antonio Pump Station Site and Alameda East and West Shafts Sites

(3) Pulgas Water Temple Site and Pulgas Balancing Reservoir Site

(4) Harry W. Tracy Water Treatment Plant Site

City and County of San Francisco City Distribution Division (CDD)

Bay Area Water Users Association (BAWUA) Member Agencies Aggregate Service Area

SOURCE: Yuki A. Kawaguchi, Cartographer

1998.898E: Hetch Hetchy Water Treatment Project-Chloramine Conversion / 990095 ■

Figure 1
Project Location

TABLE 1
SUMMARY OF CHLORAMINE CONVERSION PROJECT COMPONENTS

Location[1]	Project Component	Description of Structures	Roadway	New Impervious Surfaces	Pipelines
1. Tesla Portal, San Joaquin County	Replace and upgrade existing chlorine feed and storage facility; abandon existing structure.	Chemical building: 100 feet wide x 150 feet long x 30 feet high Retaining Wall: 200 feet long x 8 to 12 feet high	Access and loop road: 1,100 linear feet x 20 feet wide Paved parking: 42 feet x 60 feet	15,000 + 22,000 + 2,520 = 39,520 square feet	300 linear feet of 6-inch-diameter buried double-contained pipeline (liquid chlorine & sample pipeline)
2a. San Antonio Pump Station, Sunol Valley, Alameda County	Construct a new ammonia and chlorine feed facility.	Chemical building: 100 feet wide x 150 feet long x 30 feet high	Access and loop road: 400 feet x 20 feet Paved parking: 40 feet x 30 feet	15,000 + 8,000 + 1,200 = 24,200 square feet	1,000 linear feet of 4- to 6-inch diameter buried double-contained pipeline (liquid chlorine & ammonia)
2b. Alameda East Shaft, Sunol Valley, Alameda County	Construct a dechlorination facility.	Permanent shed: 20 feet wide x 30 feet long x 12 feet high	Existing	600 square feet	200 linear feet of 4- to 6-inch diameter buried double-contained pipeline (sodium thiosulfate)
2b. Alameda West Shaft, Sunol Valley, Alameda County	Construct a dechlorination facility.	Permanent shed: 20 feet wide x 30 feet long x 12 feet high	Existing	600 square feet	200 linear feet of 4- to 6-inch diameter buried double-contained pipeline (sodium thiosulfate)
3a. Pulgas Water Temple, San Mateo County	Construct a dechloramination facility and pipeline.	Chemical building: 100 feet wide x 200 feet long x 30 feet high Buried pipeline contactor or Underground basin contactor (65,000 sq. ft.)	Access road: 200 feet x 20 feet Paved area: 100 feet x 50 feet Truck turnaround: 300 feet x 20 feet	20,000 + 4,000 + 6,000 = 30,000 square feet	4,600 linear feet of 10- to 12-foot-diameter pipeline contactor or rectangular basin (65,000 sq. ft.) About 1,000 linear feet of 6-inch-diameter buried double-contained pipeline (liquid and chemical pipeline)

TABLE 1 (Continued)
SUMMARY OF CHLORAMINE CONVERSION PROJECT COMPONENTS

Location[1]	Project Component	Description of Structures	Roadway	New Impervious Surfaces	Pipelines
3b. Pulgas Balancing Reservoir, San Mateo County	Upgrade reservoir and construct chlorine boosting station	Internal piping - Inlet/outlet pipe: 84-inch-diameter x 250 feet – Inlet/outlet pipe: 66-inch-diameter x 255 feet - Relocate two flap gates Chlorine boosting station located at site 3a, above	Existing	None Included in site 3a, above	Internal only 500 linear feet of 6-inch pipeline under Cañada Road
4. Harry W. Tracy WTP, San Mateo County	Construct a new ammonia feed and storage facility.	Ammonia storage structure: 30 feet wide x 50 feet long x 30 feet high at one of two sites.	Existing	1,500 square feet	500 linear feet of 2- to 4-inch-diameter buried double-contained chemical pipeline
5. Secondary Discharge Locations, Alameda, San Mateo and San Francisco Counties	Construct dechlorination facilities	Permanent facilities: 20 feet wide x 30 feet long x 12 feet high Portable facilities: trailer-mounted	Varies	Permanent: 600 square feet Portable: none	Varies
6. CDD Facilities, San Francisco County	Implement various modifications to existing reservoirs, tanks, pumping stations, or chlorination facilities.	Typically, no new structures; modifications to existing structures only.	Typically existing	Typically, none	Buried double-contained chemical pipelines, up to several hundred feet long, 1- to 4-inch diameter
7. BAWUA Members' Facilities, San Mateo, Santa Clara and Alameda Counties	Implement various modifications to existing reservoirs and distribution systems	Currently unknown.	Typically existing	Unknown	Currently unknown

[1] See Figure 1 for project locations.

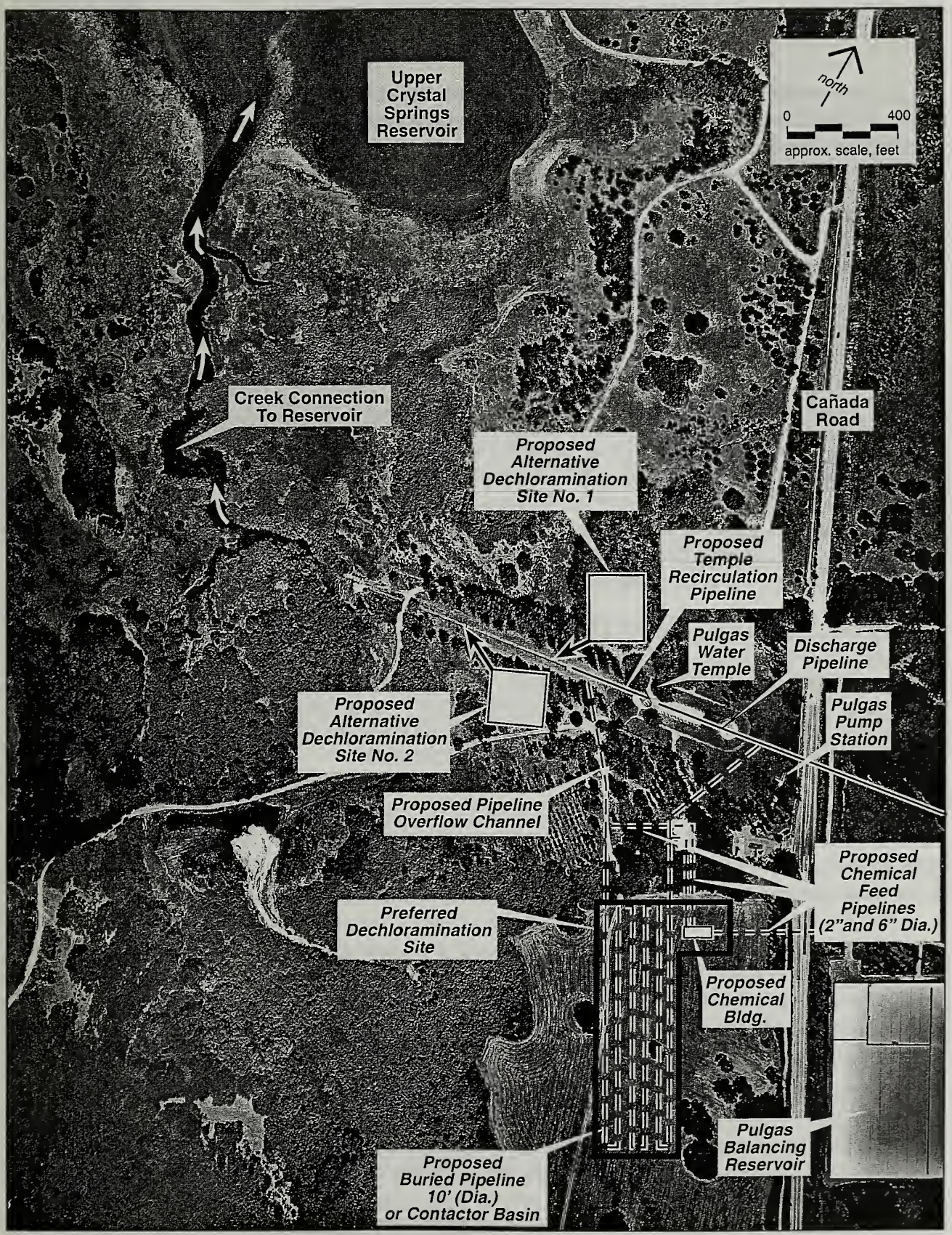
improve access for chemical delivery trucks, and a 200-foot-long and 8- to 12-foot-high retaining wall would be constructed to support a portion of the roadbed. One existing outbuilding next to the garage at the watershed keeper's residence would be demolished.

2) (a) San Antonio Pump Station on Calaveras Road in the Sunol Valley in Alameda County. A new ammonia and chlorine feed facility would be constructed at a vacant site adjacent to the San Antonio Pump Station, about 120 feet west of the existing structure. The new facility would be similar in size to the existing San Antonio Pump Station, about 100 feet wide by 150 feet long and 30 feet high. It would accommodate ammonia and chlorine storage as well as chemical metering pumps and related equipment. About 1,000 linear feet of 6-inch buried double-contained pipe would be installed to convey liquid chlorine and ammonia to the water supply to maintain the residual level of chloramine disinfectant. A new access point off Calaveras Road would be added, and a loop road would be constructed around the building for chemical delivery.

   (b) Alameda East and Alameda West Shafts on Calaveras Road in the Sunol Valley, in Alameda County. The proposed project may require construction of permanent dechlorination facilities at the existing Alameda East and Alameda West shafts in the Sunol Valley, near the San Antonio Pump Station. These facilities would be needed to protect Alameda Creek water quality in the event of incidental overflows or discharges of water from these shafts. Portable dechlorination facilities are currently used at Alameda East, but to improve reliability, a permanent structure (about 20 feet wide by 30 feet long by 12 feet high) containing a chemical metering pump and limited chemical storage would be constructed at both sites. The new facility would be within 50 feet of existing structures and valve houses at these locations. About 200 linear feet of 6-inch buried double-contained pipe would be installed to carry a chemical solution of sodium thiosulfate to the water supply.

3) (a) Pulgas Water Temple on Cañada Road near Woodside, San Mateo County. A dechloramination facility would be constructed to remove chlorine and to reduce ammonia levels prior to discharge to Crystal Springs Reservoir. The facility would include an aboveground chemical storage structure and operations building, about 100 feet wide by 200 feet long and 30 feet high, and would accommodate chemical storage as well as chemical metering pumps and related equipment. About 1,000 linear feet of 6-inch-diameter buried double-contained piping would be installed to carry liquid chemicals. In addition, to provide adequate contact time to reduce ammonia levels, a pipeline contactor (about 4,600 feet of 10- to 12-foot-diameter buried pipe) or an underground contactor basin (65,000 sq. ft.) would be installed adjacent to the proposed chemical storage structure. A pipeline to divert water from the Pulgas Pump Station about 350 feet east of the Pulgas Water Temple would be installed to convey water to the dechloramination facility for removal of chlorine and reduction of ammonia, and then another pipeline would convey the dechloraminated water back to the discharge channel about 100 feet behind the Water Temple. Because these pipelines would divert the existing water flow away from the Pulgas Water Temple proper, the project would include a pumping system to transfer a small side stream of dechloraminated water (about one to two million gallons daily) back through the Water Temple on a scheduled or planned basis. This system would maintain the sound of flowing water at the historic Water Temple site. The pipeline would either be buried or submerged within the water channel downstream of the Water Temple. The pump system could be controlled to operate during specific hours each day or only during specific events. The preferred site for the dechloramination facility and the preliminary pipeline alignments are shown in Figure 2.

   As shown in Figure 2, the preferred site for the dechloramination facility is located in a meadow along a row of mature trees directly south of the parking lot at the Pulgas Water Temple, and the



SOURCE: SFWT San Francisco Water Team

1998.898E: Hetch Hetchy Water Treatment Project-Chloramine Conversion / 990095 ■

Figure 2
Pulgas Area Facility Improvements
and Alternative Facility Sites

structure would be located about 600 feet south of the Water Temple. A new access driveway would be built on Cañada Road, and a 300-foot-long truck turnaround would be built at the end of the 200-foot-long drive with a connection to an existing gravel service road. Two alternative sites, shown on Figure 2 as Proposed Alternative Sites No. 1 and No. 2, located about 600 feet west and 600 feet northwest, respectively, of the Pulgas Water Temple may be considered. These sites are all currently vacant and have no public access.

(b) Pulgas Balancing Reservoir, east of Cañada Road near the Pulgas Water Temple. The proposed project would include reservoir upgrades to improve circulation at the existing Pulgas Balancing Reservoir, a 60-million-gallon-capacity covered reservoir. These changes would consist of internal piping modifications necessary to reduce detention time and to increase mixing conditions. This upgrade would reduce the potential for nitrification (the biological oxidation of ammonia that results in loss of disinfectant residual), which is an adverse process that can occur when chloraminated water is stored for long periods of time with insufficient mixing. In addition, it may be necessary to include a chlorine boosting station at the dechloramination facility which would pump chlorine to the Pulgas Balancing Reservoir to maintain the total chlorine residual. This station could be incorporated within the footprint of the dechloramination facility but would require a pipeline crossing under Cañada Road from the boosting station to the balancing reservoir. Approximately 500 linear feet of 6-inch diameter double-contained pipeline would be installed under Cañada Road to carry chlorine to the balancing reservoir.

4) Harry W. Tracy Water Treatment Plant on Crystal Springs Road in San Bruno, San Mateo County. A new ammonia storage and feed facility would be built at the water treatment plant at one of two possible locations within the plant boundaries. The new facility would require an area about 30 feet wide by 50 feet long and 30 feet high and would use the existing operations building at the plant for ancillary equipment, controls, and staff area. About 500 linear feet of buried chemical pipeline, 2 to 4 inches in diameter and double-contained, would be installed.

Following completion of construction and start-up activities required for the conversion process, operation of the SFPUC water supply system would require a limited increase in SFPUC staff over existing levels. Additional staff time would be required for operation and maintenance of the new facilities, at the water treatment plant, and for incorporation of chloramination into the systemwide operations.

G. PROPOSED FACILITIES – PROGRAM-LEVEL ANALYSIS

In addition to the new construction at the facility locations described above, the Hetch Hetchy Water Treatment Project--Chloramine Conversion would possibly require new facilities or modifications to existing facilities at other locations along the SFPUC water supply system or within the SFPUC service area. Changes in operations and/or maintenance to accommodate the conversion at existing facilities would also likely be required. These components of the proposed project are shown in Table 1 and include: secondary discharge locations where planned water discharges or incidental overflows may occur, the CDD facilities, and the BAWUA agencies' facilities.

At this time, however, site-specific engineering and design information are not available for these project components; therefore, these components are analyzed at a program level in this Initial Study. A program level of analysis is performed when site-specific analysis is not currently possible or is not

applicable. Instead, the environmental analysis is based on a typical scenario of similar, related facilities. For those environmental topics requiring further environmental review in the EIR, these project components will also be analyzed at a program level in the EIR. Depending on site-specific design and siting conditions, some aspects of these project components may require additional environmental review at a later date when site-specific information becomes available. The project components analyzed at a program level are described below (numbering corresponds to the list in Table 1):

5) Dechlorination Facilities at Secondary Discharge Locations. Dechlorination facilities would be required downstream of the proposed chlorine and ammonia feed points to reduce the impacts of chlorinated water in the event of intermittent discharges or overflows to creeks or other surface waters at about 14 locations along the SFPUC water supply system. These secondary discharges could be either planned discharges (i.e., water transfers) or incidental overflows. Dechlorination facilities would consist of either a permanent structure or a portable, trailer-mounted facility. These facilities would remove chlorine from the chloraminated water supply prior to discharge to creeks or surface waters to protect aquatic resources from the potentially toxic effects of chlorine and chloramine.

   Permanent dechlorination facilities, similar in size and design to the facility described above for the Alameda East and West shafts, would be required at locations where unplanned overflows could otherwise discharge chloraminated water automatically to sensitive surface waters. Portable, trailer-mounted chemical feed systems, consisting of chemical metering pumps and limited chemical storage, would be used at locations where controlled discharges or planned water transfers are conducted, such as at the Lake Merced Pump Station. These planned events, which historically have occurred only a few times each year, require that water be dechlorinated prior to discharge to a surface water body. Typically the chemicals used for dechlorination are sodium thiosulfate or sodium bisulfite, which when added to chlorinated water is not harmful to the aquatic environment at the doses applied for this use.

   This component of the proposed project would not alter the location or frequency of secondary discharges, but it would ensure the operation of either permanent or portable dechlorination facilities to remove chlorine before discharge to surface waters. This would be an improvement over existing conditions, and therefore, a beneficial water quality impact. Since the dechlorination facilities would be of limited size (possibly portable), located within or adjacent to existing water facilities, and operated only on an infrequent basis, no significant physical environmental effects would typically be anticipated. Although the discharges would result in an incremental increase in ammonia levels, these levels are not anticipated to result in water quality impacts (see checklist item 10, Water Quality, for more discussion). Only in the event of failure of the proposed dechlorination facility would there be a change from existing conditions, and any accidental or inadvertent secondary discharges would consist of chloraminated instead of chlorinated water. Therefore, the EIR will limit the program-level analysis to the potential hazard to aquatic resources and water quality of surface waters associated with such a failure, and the EIR will evaluate the potential effects of chloraminated discharges compared to the potential effects of chlorinated discharges. When site-specific information becomes available regarding the facility site and design at individual discharge locations, more detailed environmental review may be required to address any site-specific sensitive issues (e.g., construction impacts, geotechnical hazards, drainage, biological or cultural resources) associated with a permanent dechlorination structure.

6) Modifications to City Distribution Division (CDD) System. The CDD water distribution system within the City and County of San Francisco includes 10 reservoirs, 7 tanks, 18 pumping stations, and a network of pipelines throughout the City. The change in water quality associated with the chloramine conversion would require operational modifications and improvements to some chemical feed systems in the CDD distribution system in the City. To accommodate the change in residual disinfectant, operational modifications to various aspects of the CDD system would be required to control nitrification and to improve water circulation. Typical operational modifications would include: cleaning reservoirs and flushing pipelines prior to chloramine conversion; increasing water quality monitoring; and possibly increasing frequency of reservoir drawdowns. In addition, improvements to some chemical feed facilities in the CDD system would be needed to improve reliability of disinfection for these systems. Other on-going and planned CDD improvement projects would be beneficial to the chloramine conversion project in terms of maintaining high water quality and improving reliability; these are included below under "Related Projects."

   Typically, operational changes to the CDD system would involve existing facilities and would not result in physical environmental effects, with the possible exception of effects associated with increases in staffing and with cleaning of reservoirs. Therefore, operational changes to the CDD facilities are discussed in this Initial Study under population, traffic, and water quality. The internal piping and other minor modifications to the chemical feed systems could result in construction impacts (i.e., traffic, air quality, noise, and community disruption); depending on site-specific design and siting conditions, additional environmental review may be required when site-specific information becomes available.

7) Modifications to Bay Area Water User Association (BAWUA) Member Agencies' Facilities. The change in water quality associated with chloramine conversion may require operational or structural modifications of existing facilities or may require construction of new facilities at the water distribution systems operated by the BAWUA member agencies. Unlike the CDD system, which uses exclusively SFPUC water, some BAWUA agencies use different combinations of water supply sources. A major concern for BAWUA agencies would be the need to make adjustments when blending chloraminated SFPUC water with other water supplies, including chlorinated, other chloraminated, or unchlorinated water supplies. Structural and/or operational modifications of the BAWUA members' water distribution systems may be required to accommodate the chloramine conversion. These modifications could include new monitoring programs, new chemical feed facilities, reservoir improvements, distribution system modifications, cleaning and flushing programs, and possibly new blending facilities. As required for the SFPUC system, BAWUA agencies may also need to include dechlorination facilities at secondary discharge locations to protect surface waters. Prior to chloramine conversion, the BAWUA member agencies will need to conduct a comprehensive evaluation of their individual systems to determine the physical and/or operational modifications needed for their systems.

   Because the modifications to the BAWUA member agencies' systems have not yet been identified, the EIR will describe typical modifications that may be required and address program-level impacts on water quality. When site-specific information is available, further environmental review may be required by the particular water agency with jurisdiction over their project. Environmental review would be conducted under the auspices of that jurisdiction's California Environmental Quality Act (CEQA) lead agency. Therefore, specific improvements related to BAWUA members' facilities will not be considered in this Initial Study or in the EIR.

H. RELATED PROJECTS – CUMULATIVE EFFECTS

The SFPUC has other ongoing or planned projects in the vicinity of the proposed project locations or along the SFPUC water supply system that may contribute to cumulative environmental effects. The EIR analysis will assess the cumulative effects of project construction and operation in combination with the following projects:

- Interim Dechlorination Facility and Pulgas Balancing Reservoir Overflow, near the Pulgas Water Temple area
- Pulgas Pump Station Emergency Power, near the Pulgas Water Temple area
- City Distribution Division Capital Improvements Projects
- Sunol Water Treatment Plant Improvement Project
- Fluoride and Corrosion Control Feed System
- Alameda Watershed Management Plan
- Peninsula Watershed Management Plan
- Harry W. Tracy Water Treatment Plant—various improvement projects
- Supervisory Control and Data Acquisition (SCADA) Projects
- Alameda Creek Fisheries Project

Most of the projects relate either directly or indirectly to the Hetch Hetchy Water Treatment Project--Chloramine Conversion with regard to improved water quality reliability for the SFPUC water supply system. Some of the projects would occur within the vicinities of the proposed project locations, and construction activities could overlap depending on the implementation schedule for the various projects. Therefore, potential cumulative impacts from construction and operation of the proposed project in combination with construction and operation of the above-listed related projects will be evaluated in the EIR.

II. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

This Initial Study examines the potential effects on the environment of the proposed Hetch Hetchy Water Treatment Project--Chloramine Conversion. The proposed project would result in physical effects on the environment only where specific facility improvements would occur within the SFPUC water system (including four facility locations and secondary discharge locations) and within the SFPUC service area (including the CDD and BAWUA member agencies' systems). This Initial Study has determined that potentially significant impacts on visual quality, biological resources, geology, water quality, hazards, and cultural resources could occur at the various facility locations and will require further analysis in an EIR. As noted above in Section I, site-specific CDD- or BAWUA agencies-related improvements may be subject to future environmental review when more specific information becomes available; many of these facilities may be categorically exempt from CEQA.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potential impacts were determined to be either insignificant or mitigable to a less-than-significant level through measures included in the project. These items are discussed in Section III, below, and require no further environmental analysis in the EIR: population, air quality, energy/natural resources, and utilities/public services. Transportation/circulation and noise impacts were determined to be less than significant except at the Pulgas Water Temple site, where construction impacts may be a concern. In addition, certain project facilities were determined to result in less-than-significant impacts under specific environmental topics (e.g., visual impacts at the Tesla Portal facility location).

III. ENVIRONMENTAL EVALUATION CHECKLIST AND DISCUSSION

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	Discussed	Not Applicable
1) Discuss any variances, special authorizations, or changes proposed to the City Planning Code or Zoning Map, if applicable.	____	X
2) Discuss any conflict with any adopted environmental plans and goals of the city or region, if applicable.	____	X

Except for proposed improvements to the CDD system associated with the chloramine conversion, all other new facilities associated with the proposed project would be located outside of the City and County of San Francisco and are not subject to San Francisco zoning regulations or General Plan policies. The four main facility locations are within the counties of San Mateo, Alameda, and San Joaquin, but new facilities would be located entirely on property owned by the San Francisco Public Utilities Commission. All proposed facility improvements would be located adjacent to existing water facilities. Although project facilities would be located in these counties, no approvals are required from them because cities and counties are not required to obtain building or zoning approvals from other cities and counties (pursuant to California Government Code 53090 et seq.). The EIR will further discuss the consistency of relevant elements of the proposed project with the applicable goals, objectives, policies, and plans of the City and County of San Francisco, County of San Mateo, County of Alameda, County of San Joaquin, and any other regional, state, or federal agencies with jurisdiction over the project.

B. ENVIRONMENTAL EFFECTS

All items on the Initial Study checklist have been checked "No," except for items regarding visual quality, biological resources, geology, water quality, hazards, and cultural resources. For items checked "No," staff has determined that the proposed project could not have a significant adverse effect. For items checked "Yes" or "To Be Determined," the analysis will be conducted in the EIR. Several checklist items have been checked "Discussed," indicating that the text includes discussion of those particular issues. For items checked "No" without discussion, the conclusions regarding potential adverse environmental effects are based on field observation, staff and consultant experience on similar

projects, and standard reference material available within the Planning Department. For each checklist item, the evaluation considers the impact of the project both individually and cumulatively.

1) Land Use. Could the project:	Yes	No	Discussed
(a) Disrupt or divide the physical arrangement of an established community?	____	X	X
(b) Have any substantial impact upon the existing character of the vicinity?	*To be determined*		

The project would involve development of new facilities at four main locations, and there would be a potential for land use impacts at these locations. Since proposed water facilities would be located immediately adjacent to existing water facilities, they would not disrupt or divide the physical arrangement of adjacent communities. Proposed facilities at the Tesla Portal, San Antonio Pump Station, and Harry W. Tracy Water Treatment Plant (WTP) locations would not alter the existing character of their vicinities, since proposed facilities would be located adjacent to existing water facilities. However, construction of the proposed pipeline and contactor facilities near the Pulgas Water Temple could result in temporary impacts on the existing character of the temple. Since the project would intensify existing water facility operations and increase the extent of developed area in these four main facility locations, the EIR will further discuss potential short- and long-term impacts on the land use character in their vicinities. The EIR will identify existing and proposed land uses (including recreational uses) in areas surrounding these four locations, as well as anticipated effects of project construction or operation on neighboring land uses (including recreational facilities such as the Pulgas Water Temple and any other sensitive land uses).

2) Visual Quality. Could the project:	Yes	No	Discussed
(a) Have a substantial, demonstrable negative aesthetic effect?	*"No" at all locations except to be determined at San Antonio and Pulgas*		
(b) Substantially degrade or obstruct any scenic view or vista now observed from public areas?	*"No" at all locations except to be determined at San Antonio and Pulgas*		
(c) Generate obtrusive light or glare substantially impacting other properties?	____	X	X

Tesla Portal. The proposed chlorine storage and feed facility would be located on an undeveloped site adjacent to existing structures at the Tesla Portal facility. The site is located in a remote area and would not be visible from any public viewpoints. Adjacent areas are undeveloped. Distant views of the proposed building could be available from Interstate 580 (I-580) and residential areas to the east. However, at these distances (approximately one-half mile), the proposed building would likely blend in with existing buildings at the Tesla Portal facility. Since no visual impacts would result, the EIR visual analysis will not include further discussion of this proposed facility.

San Antonio Pump Station. The proposed ammonia and chlorine feed facility would be visible from Calaveras Road, which is designated by Alameda County as a scenic route. However, the proposed building would be located adjacent to the existing San Antonio Pump Station building and associated facilities, which are currently visible from this road. Furthermore, the proposed site is highly disturbed and littered with debris, and the site is surrounded by mining, nursery, and other industrial/commercial uses. These factors currently degrade the visual character of the site; nonetheless, the EIR will examine the potential degradation of views from any nearby recreational uses and from Calaveras Road.

Proposed dechlorination systems at the Alameda East shaft and possibly the Alameda West shaft would not result in any significant change in scenic views. Since proposed facilities at the Alameda East shaft may be located within an existing structure or adjacent to existing SFPUC facilities, no change in existing views would result from the project. If new facilities are required at the Alameda West shaft, they would be located within an existing valve house or a new building adjacent to it. No change in scenic views or existing visual character would occur if proposed facilities are located within the existing valve house; if a new building is needed, it would be located one-quarter mile west of Calaveras Road, and at this distance would not substantially alter the existing visual character or degrade scenic views. Also, since the new building would be adjacent to existing water facilities and buildings, there would be no substantial change in the visual character. Since no visual impacts would occur, the EIR visual analysis will not include further discussion of these facilities.

Pulgas Water Temple. The proposed dechloramination facility would be visible from Cañada Road and from the public parking lot associated with the Pulgas Water Temple. The proposed site is located in a generally undeveloped area near the Crystal Springs Reservoir. Cañada Road and the Pulgas Water Temple attract pedestrians and bicyclists as well as motorists throughout the year. There could be a temporary degradation of scenic views during construction of proposed pipelines and possible concrete basin that would extend between the dechloramination facility site and the Water Temple. The 20-foot-wide construction corridor near the temple would have an open trench, stockpiled soil, and construction vehicles/equipment and could temporarily degrade the visual character of the Pulgas Water Temple vicinity.

The EIR will describe the existing visual environment for proposed project facilities at the Pulgas site, identify potentially sensitive viewpoints of this site, and present photosimulations of the proposed dechloramination facility from these viewpoints.

The Pulgas Balancing Reservoir is only slightly visible to the public. Proposed reservoir upgrades at the Pulgas Balancing Reservoir would consist of interior piping only. Although there could be a temporary degradation of aesthetics due to the presence of construction equipment and materials, no permanent or long-term changes in scenic views or visual character would result from this proposed improvement. Therefore, no further discussion of this improvement will be included in the EIR visual analysis.

Harry W. Tracy WTP. Development of the proposed ammonia feed system would not degrade or obstruct scenic views or have a substantial negative aesthetic effect, since the building enclosing the proposed system would not be visible from public vantage points. The proposed site would be located adjacent to an existing building, which is not visible from surrounding areas, and the proposed building

likewise would not be visible from any public vantage points. One alternative site for the proposed building is approximately 100 feet to the north of the proposed site. Although residences on Crestview Drive are as close as approximately 400 feet to the east, a hill between the alternative site and these residences would block views of the proposed building from the residences. Therefore, the proposed building would not degrade or obstruct scenic views or have a substantial negative aesthetic effect on these residences from this location. The EIR will not further discuss the visual quality impacts at the Harry W. Tracy WTP, since the proposed building would not degrade or obstruct scenic views or have a substantial negative aesthetic effect.

3) Population. Could the project:	Yes	No	Discussed
(a) Induce substantial growth or concentration of population?		X	X
(b) Displace a large number of people (involving either housing or employment)?		X	X
(c) Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?		X	X

Implementation of the proposed project (including development of the four main facility locations as well as CDD and BAWUA agencies' improvements) are not expected to generate substantial new population, since proposed changes would not expand the overall capacity of the system. However, the EIR will further discuss the project's growth-inducement potential and provide a more detailed evaluation of the growth potential associated with each aspect of the proposed project.

Project implementation would not displace existing housing or businesses. All proposed SFPUC facilities would be located on lands owned by the SFPUC (which are either already developed with water facilities or are undeveloped) or within existing SFPUC, CDD, or BAWUA agencies' facilities. Some short-term jobs would be created as a result of project construction. Initial operation and maintenance may require staffing hours equivalent to approximately 21 additional staff people throughout the SFPUC system, while long-term project operation and maintenance would require staffing hours equivalent to approximately four to six additional staff people throughout the system (including the CDD system). Since most of these staffing hours would be required throughout the SFPUC system and would not be specific to one location, prospective employees could reside in the Bay Area as well as residential areas to the east, in the vicinity of the SFPUC water supply system. Such a wide geographic distribution would allow new residents to be accommodated without substantially decreasing the available housing supply in those communities. Additional staffing hours associated with operation and maintenance of required new facilities within the BAWUA member agencies' system are expected to be substantially less than the SFPUC system estimates and would not cause a significant effect. Since no population, housing, or employment impacts would result from this project, the EIR will not include further discussion of these topics.

4) Transportation/Circulation. Could the project:	Yes	No	Discussed
(a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	____	X	X
(b) Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?		*"No" at all locations except to be determined at Pulgas*	
(c) Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	____	X	____
(d) Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	____	X	X

Tesla Portal. Access to the project site is provided by Vernalis Road, an existing two-lane roadway that extends between Chrisman Road and the project site along the west side of I-580.

The proposed project would result in temporary increases in truck and vehicular traffic due to construction-related material and equipment deliveries and construction-worker access. Construction-related traffic increases in the project vicinity would occur primarily on Chrisman and Vernalis roads, and daily increases would not be substantial due to the limited extent of new construction. Since these roadways carry relatively low traffic volumes, primarily serving the residential area and golf course to the east, increases in material deliveries during construction would not substantially increase traffic in the project vicinity (relative to road capacity). The level of construction traffic would not be substantial and thus would not be expected to significantly increase the potential for safety hazards. Therefore, the EIR will not include further discussion of construction traffic associated with this facility.

No increase in operational vehicular traffic would occur with the project. Operation of the project would not alter staffing requirements at the existing facility and would not increase operational employee trips. At present, there are three to five deliveries per week under average flow conditions and eight to ten deliveries per week under maximum flow conditions (which occurs approximately three to four months out of the year, typically during summer months). Such delivery rates generate an average of two truck trips (one-way) per day under average flow conditions and up to four truck trips (one-way) per day under maximum flows.[4] The project would not increase chemical deliveries to this facility. Therefore, the EIR will not include further discussion of operational truck traffic associated with this facility.

There is adequate open area within and around the Tesla Portal facility to provide sufficient parking for construction-related trucks and vehicles. The proposed chlorine storage and feed facility is proposed to be designed with sufficient parking for chemical delivery trucks and employee vehicles.

[4] Truck traffic volumes assume one chemical delivery generates two one-way truck trips (one inbound trip and one outbound trip). It is also assumed that chemical deliveries only occur on weekdays, and therefore, the number of weekly deliveries is averaged over five days to derive the average daily traffic volume.

San Antonio Pump Station. Access to the project site is provided by Calaveras Road, an existing two-lane roadway that extends between I-680 and the project site. Traffic generated by project construction and operation would use Calaveras Road between the site and I-680.

The proposed project would result in temporary increases in truck and vehicular traffic due to construction-related material and equipment deliveries and construction-worker access at the San Antonio Pump Station site as well as the Alameda East and West shafts sites. Construction-related traffic increases in the site vicinities would temporarily occur on Calaveras Road, and daily increases would not be substantial due to the limited extent of new construction. Since Calaveras Road carries relatively low traffic volumes, primarily providing access to commercial and recreational uses to the south, traffic generated by project construction would not substantially increase traffic in the site vicinities (relative to road capacity). The level of construction traffic would not be substantial and thus would not be expected to significantly increase the potential for safety hazards. Therefore, the EIR will not include further discussion of construction traffic associated with this facility.

Operation of the project would require additional staffing hours equivalent to one staff person at this facility. At present, chemical deliveries to the San Antonio Pump Station occur approximately two to three times per year. There are no chemicals stored at the Alameda West site, and chemicals needed at the Alameda East site are delivered to the San Antonio Pump Station site. After project implementation, there would be four to five deliveries per week under average flow conditions and eight to nine deliveries per week under maximum flow conditions (which occurs approximately three to four months out of the year, typically during summer months). Such delivery rates would generate an average of two truck trips (one-way) per day under average flow conditions and up to four truck trips (one-way) per day under maximum flows. The project would result in an average net increase of up to two truck trips per day under average flows and up to four truck trips per day under maximum flow conditions. Since Calaveras Road carries relatively low traffic volumes, traffic generated by project operation would not substantially increase traffic in the project vicinity (relative to road capacity). The level of operational traffic would not be substantial and thus would not be expected to significantly increase the potential for safety hazards. Therefore, the EIR will not include further discussion of operational traffic associated with this facility.

There is adequate open area within and around the existing San Antonio Pump Station facility to provide sufficient parking for construction-related trucks and vehicles. The proposed ammonia and chlorine feed system facility is proposed to be designed with sufficient parking for chemical delivery trucks and employee vehicles.

Pulgas Water Temple. Access to the project site is provided by Cañada Road, an existing two-lane roadway that extends between two I-280 interchanges, one to the north at Highway 92 and one to the south at Edgewood Road.

Traffic generated by project construction would result in traffic increases on Cañada Road between the site and I-280. Project construction would also include a pipeline crossing under Cañada Road from the boosting station to the balancing reservoir. The project would generate new truck traffic due to construction-related material and equipment deliveries. Workers accessing the site would also generate

additional vehicular traffic during construction. Temporary partial or full closure of Cañada Road would be required as part of pipeline construction. Pulgas Water Temple and Cañada Road are used by recreationists, and special events (e.g., weddings) are frequently held at the Water Temple. Construction-related traffic increases associated with the proposed dechloramination facility and Pulgas Balancing Reservoir improvements could conflict with traffic associated with recreational uses and special events at the Pulgas Water Temple. The EIR will further discuss potential conflicts associated with increased construction-related truck traffic increases on Cañada Road and the site vicinity.

Project-related operational traffic would access the site via Cañada Road, where there are currently no chemical deliveries and limited employee traffic. Operation of the project would require additional staffing hours equivalent to less than one staff person at this facility. After project implementation, the proposed facility would require an average of two to five deliveries per week under average flow conditions and 12 to 14 deliveries per week under maximum flows (which occurs approximately three to four months out of the year, typically during summer months). Such delivery rates would generate an average of two truck trips (one-way) per day under average flow conditions and up to six truck trips (one-way) per day under maximum flows. Such increases would not substantially increase traffic on Cañada Road (relative to road capacity).

There is adequate open area within and around the project site (including the overflow parking lot at Pulgas Water Temple) to provide sufficient parking for construction-related trucks and vehicles. The proposed dechloramination facility is proposed to be designed with sufficient parking for chemical delivery trucks and employee vehicles.

Harry W. Tracy WTP. The project would generate new truck traffic due to construction-related material and equipment deliveries and operational truck traffic associated with chemical deliveries. Workers accessing the site would also generate additional vehicular traffic during construction. Construction-related daily traffic increases would not be substantial due to the limited extent of new construction. The project would increase staffing hours at this existing facility equivalent to less than one additional staff person, which would likely be absorbed by existing staff. Project-related traffic would access the site via Crystal Springs Road, consistent with current chemical delivery and employee access routes. At present, there are an average of four chemical deliveries per week, which generates an average of two truck trips per day. The project would result in an average of two additional deliveries per week during average flows and three additional deliveries per week during maximum flow conditions (which occurs approximately three to four months out of the year, typically during summer months). Additional deliveries would generate an average of one additional truck trip (one-way) per day under average and maximum flow conditions. Such increases would not substantially increase traffic on Crystal Springs Road (relative to road capacity). The level of construction-related and operational traffic would not be substantial and thus would not be expected to significantly increase the potential for safety hazards. Therefore, the EIR will not include further discussion of construction or operational traffic associated with this facility.

The project site is adjacent to the WTP's existing parking lot, and there is limited additional open area in the site vicinity to accommodate any substantial increase in parking demand by construction-related trucks and vehicles. However, there is adequate area within the WTP facility area to accommodate the

project's construction-related parking demand. Construction parking and staging areas would be designated and located away from existing residences. The proposed ammonia and chlorine feed facility would be designed with sufficient parking for chemical delivery trucks and employee vehicles.

CDD System. Since long-term project operation and maintenance would require staffing hours equivalent to approximately four to six additional staff people throughout the SFPUC system (including the CDD system), project-related operational traffic increases at CDD facilities would be less than significant. Initial cleaning of CDD reservoirs would require staffing hours equivalent to approximately seven additional staff people. Such an increase in staff would be temporary (limited to the cleaning operation) and distributed over the various CDD reservoirs. Therefore, additional staff requirements associated with initial and long-term operation of CDD improvements would result in less-than-significant traffic increases.

5) Noise. Could the project:	Yes	No	Discussed
(a) Increase substantially the ambient noise levels for adjoining areas?		*"No" at all locations except to be determined at Pulgas*	
(b) Violate Title 24 Noise Insulation Standards, if applicable?	_____	n/a	_____
(c) Be substantially impacted by existing noise levels?	_____	X	_____

Tesla Portal. Areas adjacent to the proposed chlorine storage and feed facility site are currently undeveloped, except for existing water-related facilities. There is a residential area approximately one-half mile to the east. The ambient noise environment in this area is dominated by I-580, which is immediately to the northeast. The access road to the project site, Vernalis Road, is located as close as 50 to 100 feet from those residences that are closest to the freeway.

Project implementation would have the potential to generate noise during construction and operation. However, due to the one-half-mile separation between residences and the site, on-site operational or construction noise would not substantially increase ambient noise levels at existing residences. Noise levels of 75 to 85 A-weighted decibels (dBA) at 50 feet are typically generated by earthmoving equipment. The one-half-mile separation would reduce such noise levels to 41 to 51 dBA, which would be at or below typical daytime ambient noise levels characteristic of most residential environments located near a freeway such as I-580.

Operation of the proposed storage and feed facility would generate low levels of noise associated with pumps and interior alarms. Alarms would be low-decibel or visual alarms and would only be audible inside the building. Since noise-generation potential would depend on the size of the pumps, the maximum possible noise level that could be generated by pumps would be 85 dBA (Leq)[5] at 50 feet.[6]

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5 Leq: Equivalent energy noise level, which is the average acoustic energy content of time-varying noise during the measurement period.

6 It should be noted that chemical pumps are anticipated to be small pumps, generating low noise levels similar to a photocopier.

Since pumps (along with the entire storage and feed system) would be enclosed within a building, pump noise would be reduced by 15 to 40 dBA, depending on the building design. When noise reductions due to the intervening distance and the proposed building enclosure are considered, project-related operational noise levels would be 35 dBA or less at the closest residences. Such levels would be at or below typical daytime or nighttime ambient noise levels characteristic of most residential environments located near a freeway such as I-580. Standby power for the facility would likely be provided by an emergency diesel- or propane-powered generator. The emergency generator would be used infrequently and enclosed within the facility building or in an adjacent free-standing enclosure, reducing the potential for long-term noise impacts. Therefore, construction-related and operational facility noise would not substantially increase ambient noise levels, and the EIR will not include any further discussion of construction or operational noise at this facility.

Traffic-generated noise increases would also result from project construction and operation. The project would generate new truck traffic due to construction-related material and equipment deliveries and operational truck traffic associated with chemical deliveries. Workers accessing the site would also generate additional vehicular traffic during construction. Project-related traffic would access the site via Vernalis Road, which extends along the southwest side of I-580, west of Chrisman Road. Just west of Chrisman Road, existing homes are located within 50 to 100 feet of Vernalis Road. Due to the already high ambient noise levels associated with I-580 in this area, the small increase in construction-related worker vehicular traffic on this road would not substantially increase ambient noise levels. Temporary noise increases resulting from construction-related truck trips could be noticeable but would not substantially increase ambient noise levels or affect residential receptors, since these increases would occur only during the daytime hours for a limited duration. Project operation would not alter staffing requirements at the existing facility, and there would be no increase in operational employee trips or chemical deliveries. Therefore, the EIR will not include further discussion of construction or operational traffic noise associated with this facility.

San Antonio Pump Station. The proposed ammonia and chlorine feed facility would be located in an undeveloped area adjacent to the existing San Antonio Pump Station. Areas adjacent to the project site are developed with water facilities or industrial uses (quarries, nurseries, recycling plant, etc.). The Environmental Health and Safety section of the Alameda *East County Area Plan*[7] identifies noise-sensitive land uses as residential development, mobile-home parks, schools, libraries, churches, hospitals, nursing and convalescent homes, and some parks and cultural facilities. There are no such noise-sensitive receptors in the project vicinity. The ambient noise environment in this area is dominated by traffic on Calaveras Road and equipment operation at the nearby industrial and mining uses and the adjacent San Antonio Pump Station.

Project implementation would have the potential to generate noise in the site vicinity during facility construction and operation. However, since no noise-sensitive receptors would be adversely affected, potential noise increases associated with the project would not have a significant impact. Traffic-generated noise increases associated with project construction and operation would occur primarily along

7 County of Alameda, Planning Department, *East County Area Plan, Volume 1: Goals, Policies and Programs,* Adopted May 5, 1994 (corrected March 1996).

Calaveras Road between the site and I-680. Again, since there are no noise-sensitive receptors located along this road (south of the freeway), traffic noise increases would not have a significant impact. Therefore, the EIR will not include further discussion of construction or operational noise at this facility.

Pulgas Water Temple. The proposed dechloramination facility would be located in an undeveloped area immediately south of the Pulgas Water Temple and west of Cañada Road. I-680 is approximately one-half mile to the east. The Filoli Estate, a 654-acre private landholding, is approximately 4,200 feet (0.8 mile) to the south. The Filoli Estate, which is open to the public, includes one historic residence, gardens, and nature trails.

The Man-Made Hazards section of the San Mateo County General Plan[8] defines noise-sensitive land uses as "land uses most sensitive to noise intrusion, including, but not limited to, residential and the following institutional uses: hospitals, schools and libraries." Although recreational uses are not specifically identified as noise-sensitive, the Pulgas Water Temple could be considered noise-sensitive, given the nature of its use for special events (e.g., weddings). No other noise-sensitive receptors exist within the vicinities of the proposed dechloramination facility site or the Pulgas Balancing Reservoir site. The closest residential uses are over one mile to the east of the facility, and east of I-280. The EIR will further discuss potential noise impacts associated with construction and operation of the proposed project.

Harry W. Tracy WTP. Development of the proposed ammonia feed facility would have the potential to generate noise during construction and operation. There are existing residences as close as approximately 500 feet to the southeast and 1,000 feet to the east. Existing topographical features to the southeast and east currently block direct lines-of sight and provide noise attenuation between the project site and these residences. The ambient noise environment in this area is dominated by I-280, which is immediately west of the site and the residential area to the southeast.

Construction noise levels of 75 to 85 dBA at 50 feet are typically generated by earthmoving equipment. The combined attenuation provided by distance and topography would reduce such noise levels to 45 to 57 dBA, which would be at or below typical daytime ambient noise levels characteristic of most residential environments located adjacent to a freeway such as I-280. The project would not substantially increase ambient noise levels during construction. Therefore, the EIR will not include further discussion of construction noise at this facility.

Operation of the proposed ammonia feed system would generate low levels of noise associated with pumps and interior alarms. Alarms would be low-decibel or visual alarms and would only be audible inside the building. Since noise-generation potential would depend on the size of the pumps, the maximum possible noise level that could be generated by pumps would be 85 dBA (Leq) at 50 feet.[9] Since pumps associated with the feed system would be enclosed within a building, pump noise would be reduced by 15 to 40 dBA, depending on the building design. When noise reductions from topography,

8 County of San Mateo, Department of Environmental Management, *General Plan for San Mateo County, Man-Made Hazards Background,* November 1986.

9 It should be noted that chemical pumps are anticipated to be small pumps, generating low noise levels similar to a photocopier.

the intervening distance, and the proposed building enclosure are considered, project-related operational noise levels are expected to be 42 dBA or less at residences, which would be at or below typical daytime and nighttime ambient noise levels characteristic of most residential environments located adjacent to or near a freeway such as I-280. In addition, standby power for the facility would likely be provided by the existing emergency generator at this facility. Project operation would not substantially increase ambient noise levels, and thus the EIR will not include further discussion of operational noise at this facility.

Traffic-generated noise increases would also result from project construction and operation. The project would generate new truck traffic due to construction-related material and equipment deliveries and operational truck traffic associated with chemical deliveries. Workers accessing the site would also generate vehicular traffic during construction. The project would not alter staffing requirements at the existing facility, and there would be no increase in employee trips.

Project-related traffic would access the site via Crystal Springs Road along current chemical delivery access routes. Although residential uses are located along this roadway, ambient noise levels in this area are already relatively high due to traffic on Crystal Springs Road and I-280. Project-related traffic would have to nearly double existing traffic levels on this roadway to result in a noticeable noise increase. Therefore, the relatively small increase in worker vehicular traffic on this road during construction would not substantially increase ambient noise levels. Temporary noise increases resulting from construction-related truck trips could be noticeable at some residences but would not substantially increase ambient noise levels or affect residential receptors, since these increases would occur only during the daytime hours and for a limited duration. With respect to increased chemical deliveries, it is anticipated that truck deliveries would increase by less than one truck delivery per day. Such a small traffic increase would not substantially alter ambient noise levels. The EIR will not include further discussion of construction or operational traffic noise associated with this facility.

6) Air Quality/Climate. Could the project:	Yes	No	Discussed
(a) Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	____	X	X
(b) Expose sensitive receptors to substantial pollutant concentrations?	____	X	X
(c) Permeate its vicinity with objectionable odors?	____	X	X
(d) Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	____	X	X

Project-related construction activities at the Tesla Portal, San Antonio Pump Station, Pulgas Water Temple, and Harry W. Tracy WTP locations would generate dust and construction-equipment exhaust emissions. However, construction activities would not generate substantial air pollutants or violate ambient air quality standards at the four facility locations if standard emission-control measures, as specified by the Bay Area Air Quality Management District (BAAQMD), are implemented. The

BAAQMD considers project-related construction emissions to be mitigated to a less-than-significant level with implementation of these standard measures. These measures will be incorporated into the proposed project as construction specifications and are as follows:

- Water all active construction sites at least twice daily, and more often on days when winds exceed 10 to 15 miles per hour.
- Cover all trucks hauling soil, sand, and other loose materials *or* maintain at least 2 feet of freeboard in trucks hauling such materials.
- Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Using water sweepers, sweep all paved access roads, parking areas, and staging areas at construction sites on a daily basis.
- Using water sweepers, sweep streets adjacent to construction sites daily if visible soil material is carried onto adjacent public streets.

For construction areas involving disturbance of more than four acres, the following enhanced control measures will be implemented:

- Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion-control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

Project operation would generate air pollutant emissions associated with traffic generated by new employees and chemical deliveries. Since additional staffing hours associated with project operation would result in minimal daily traffic increases throughout the SFPUC system, traffic-related air emissions would not substantially increase local or regional emissions. Also, truck exhaust emissions generated by increased chemical deliveries would not be expected to violate any ambient air quality standards, since chemical deliveries to the four facilities would not increase substantially on a daily basis.

Water treatment-related facilities have generally not been associated with air pollution emissions that have state and federal standards, or those that might cause a localized nuisance due to odor, fumes, mist, etc. Operation of the proposed ammonia and chlorine feed systems at Tesla Portal, San Antonio Pump Station, and Harry W. Tracy WTP as well as the dechloramination facility at Pulgas Water Temple would involve increased chemical storage and usage at these locations. The potential for accidental release of treatment chemicals is discussed in checklist item 12, Hazards. Other than accidental releases, proposed facilities would not produce direct air emissions. Standby power for these facilities would likely be provided by emergency diesel- or propane-powered generators. Emergency power at Harry W. Tracy WTP would be provided by the existing emergency generator at this facility. Since the proposed

generators would be stationary-point sources, they would be subject to review by the BAAQMD to determine if an Authority to Construct permit and a Permit to Operate are required. The permit review process would ensure that air emissions associated with the facility comply with applicable BAAQMD standards. The EIR will not include further discussion of construction or operational air quality impacts associated with these facilities, since implementation of Mitigation Measure 1 and the BAAQMD permit review requirements would reduce potential air quality impacts to a less-than-significant level.

Operation of the proposed ammonia and chlorine feed systems at Tesla Portal, San Antonio Pump Station, and Harry W. Tracy WTP as well as the dechloramination facility at Pulgas Water Temple would involve the use of chemicals for disinfection. There would be a potential for odor impacts in proximity to areas where the concentrated chemicals are stored or transferred. However, all contact points between the atmosphere and chemical storage and feed facilities are sealed or vented to minimize odor potential. Potential odor impacts associated with accidental releases are discussed below under checklist item 12, Hazards. The use of chlorine and ammonia for disinfection could result in changes to the taste and odor of treated water, and the EIR will address these changes in the Public Health and Water Supply section.

7) Utilities/Public Services. Could the project:	Yes	No	Discussed
(a) Breach published national, state, or local standards relating to solid waste or litter control?		X	X
(b) Extend a sewer trunk line with capacity to serve new development?		X	X
(c) Substantially increase demand for schools, recreation or other public facilities?		X	X
(d) Require major expansion of power, water, or communication facilities?		X	X

Construction and operation of the project facilities would not breach published national, state, or local standards relating to solid waste or litter control; extend a sewer trunk line with capacity to serve new development; increase demand for schools, recreation, or other public facilities; or require major expansion of power, water, or communication facilities. On-site utilities are available at the four main facility locations and include gas, water, electrical, sewer/septic, and storm drains. The Alameda West shaft has gas, water, and electrical utilities only.[10] Construction of the project facilities could potentially interfere with other existing utilities and public services. During construction, there would be a potential for temporary disruptions in utilities or emergency response delays in areas located immediately adjacent to proposed facilities. However, the SFPUC will coordinate its planning and design efforts with affected utilities and notify emergency providers. Such measures will reduce potential service disruption impacts to a less-than-significant level.

10 San Francisco Water Team, *Chloramine Conceptual Design Report*, 1999. Appendix A.4.1.

8) Biology. Could the project:	Yes	No	Discussed
(a) Substantially affect a rare or endangered species of animal or plant or the habitat of the species?		*"No" at Tracy WTP; to be determined at other facility locations*	
(b) Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any migratory fish or wildlife species?		*"No" at Tracy WTP; to be determined at other facility locations*	
(c) Require removal of substantial numbers of mature, scenic trees?		*"No" at Tracy WTP; to be determined at other facility locations*	

Tesla Portal. The proposed chlorine storage and feed facility would be located on an undeveloped site adjacent to existing structures at the Tesla Portal facility. Preliminary surveys indicate that a wetland is located on the site. The EIR will examine this wetland further to determine (1) the source of water supporting this wetland, (2) its biological quality and importance, and (3) whether it is under the jurisdiction of the U.S. Army Corps of Engineers. The EIR will also assess potential impacts on any other biological resources located on the site.

San Antonio Pump Station. The proposed ammonia and chlorine feed facility would be located in a floodplain area located adjacent to the existing San Antonio Pump Station. Preliminary surveys indicate that a potential jurisdictional wetland is located on the site. The EIR will examine this wetland further to determine (1) the source of water supporting this wetland, (2) its biological quality and importance, and (3) whether it is under the jurisdiction of the U.S. Army Corps of Engineers. The EIR will also assess potential impacts on any other biological resources located on the San Antonio Pump Station site as well as on the Alameda East and West shafts sites.

Pulgas Water Temple. The proposed dechloramination facility would be located in an area near a known habitat for special-status species (e.g., California red-legged frog and San Francisco garter snake) or could contain jurisdictional wetlands. Construction of proposed pipelines that would extend between the dechloramination facility site and the Water Temple would require tree removal; construction of the contactor pipeline or basin could also traverse areas containing sensitive biological resources. Although proposed reservoir upgrades at the Pulgas Balancing Reservoir would consist of interior piping only, any temporary surface disturbance resulting from construction activities (e.g., staging areas) would have the potential to adversely affect sensitive biological resources, if they are present. The EIR will confirm the presence or absence of sensitive habitats, special-status species, and jurisdictional wetlands in the affected area. In addition, the EIR analysis will examine potential conflicts with the San Mateo County Tree Ordinance (if applicable) and adopted and proposed policies of the Peninsula Watershed Management Plan, which both protect wetlands, riparian habitats, and ecologically sensitive habitats (including special-status species and their habitats).

Although the dechloramination facility would remove chlorine and reduce ammonia levels, the resulting discharge to Crystal Springs Reservoir would contain minor increases in ammonia. Since ammonia at higher concentrations can be toxic to aquatic life and can result in algal blooms, the EIR will discuss the potential effects associated with ammonia discharges into Crystal Springs Reservoir. In addition, in the

event of upset and failure of the proposed dechloramination facility, there could be adverse effects on aquatic resources and water quality due to discharges into the reservoir. The EIR analysis will address potential impacts on aquatic habitat in the event of an accidental discharge of chloraminated water compared to chlorinated water.

Proposed upgrades at the Pulgas Balancing Reservoir would consist of interior piping only. The EIR will examine potential impacts on biological resources that could result from construction-related activities associated with surface disturbance or tree removal.

Harry W. Tracy WTP. Preliminary surveys indicate that there are no sensitive biological resources at the proposed site of the ammonia feed system. The site is adjacent to an existing building and paved parking lot and is covered mostly with landscape species and invasive plant species (i.e., French Broom *[Genisia monspessulana]* and purple star thistle *[Centaurea calcitrapa])*. Ground disturbance could result in the spread of these invasive plants, but given the lack of sensitive biological resources on this site, the EIR will not further discuss biological impacts at the Harry W. Tracy WTP.

Secondary Discharges. The EIR analysis will address potential program-level impacts on aquatic habitats that could result from any accidental or inadvertent secondary discharges of chloraminated instead of chlorinated water in the event of failure of a proposed dechlorination facility.

9) Geology/Topography. Could the project:	Yes	No	Discussed
(a) Expose people or structures to major geologic hazards (slides, subsidence, erosion, and liquefaction)?			*To be determined*
(b) Change substantially the topography or any unique geologic or physical features of the site?			*To be determined*

Tesla Portal. The San Joaquin thrust fault is located beneath the Tesla area and may be capable of producing seismic warping across an area about 250 feet wide. Proposed facilities would be located within the zone of potential ground warpage during a major earthquake along this fault. The subsurface soils at this site consist of sandy clays, sandy gravels, and sand. These conditions are considered adequate to support the facilities with the use of shallow foundations.[11] The EIR will further discuss potential seismic hazards associated with this facility.

San Antonio Pump Station. The proposed ammonia and chlorine feed facility would be within the Alquist-Priolo Special Studies Zone, about 1,300 feet from the mapped trace of the Calaveras fault. The Calaveras fault system is a major branch of the San Andreas system in Northern California, splitting from the San Andreas a few miles south of Hollister and extending approximately 80 miles northeast to an area just north of Danville. Historically, a number of earthquakes have occurred along the Calaveras fault, including the 1984 Morgan Hill event (6.2 moment magnitude). It has been estimated that the

11 San Francisco Water Team, *Chloramine Conceptual Design Report*, 1999.

Calaveras North fault is capable of producing a 6.8 moment magnitude earthquake.[12] Given the high level of historic activity on the Calaveras fault and the proximity of the proposed facilities to the fault, the potential exists for fault rupture and strong groundshaking in the event of an earthquake. A systematic drilling program was conducted to locate the limits of the Calaveras fault in the project vicinity and the program indicated that the fault trace is likely located to the west of the San Antonio Pump Station, possibly encroaching into the proposed location of the feed facility site. Therefore, a limited fault trenching program is currently underway to determine if the fault is located on the site.

The shallow soils at the site consist of silty clay and silty sand to a depth of about 18 feet, where geotechnical investigations encountered bedrock beneath most of the site. It is suspected that the bedrock may plunge to greater depths beneath the western portion of the site. The geologic materials are generally adequate to support a shallow foundation, although the possible change in bedrock depth may influence foundation design.[13] The EIR will further discuss the project's potential seismic and geotechnical impacts and provide mitigation measures for any such impacts. The EIR will also examine the project's potential geotechnical impacts and provide appropriate mitigation measures for the vicinities of the Alameda East and West shafts, which are also located in proximity to the Calaveras fault.

Pulgas Water Temple. The proposed dechloramination facility would be located on the border of the Alquist-Priolo Special Studies Zone, within about 2,200 feet of the San Andreas fault system, which is a major feature of California tectonics and is responsible for most of California's largest earthquakes. The 1906 San Francisco earthquake (7.8 moment magnitude) occurred along this fault system. The San Andreas fault forms a rift valley in which Upper and Lower Crystal Springs reservoirs are situated, and this fault intersects an abutment of San Andreas Reservoir (both Lower Crystal Springs and San Andreas dams existed in 1906, but neither were seriously damaged). A secondary trace of the San Andreas fault, the Cañada fault, is mapped about 900 feet southwest of the proposed construction site. The risk of fault rupture is low at this site, although strong groundshaking could occur in the event of an earthquake.[14] Development of this facility would require substantial grading for pipelines, basins and other facilities, resulting in topographic changes that would increase the potential for geotechnical hazards (including erosion). The EIR will further discuss the potential for seismic and geotechnical hazards associated with this facility.

The Pulgas Balancing Reservoir is also located in proximity to the San Andreas fault system. Although proposed reservoir upgrades would consist of interior piping only, the EIR will examine the potential seismic and geotechnical hazards at this location.

Harry W. Tracy WTP. The proposed ammonia feed facility would be located in proximity to the San Andreas fault system, which is described above under the Pulgas Water Temple. The site is located on a hillside adjacent to existing buildings and a paved parking lot. Substantial excavation would be required

12 The Water Reliability Partnership, *SFPUC Facilities Reliability Program, Phase II – Regional System Overview, Technical Memorandum No. 1, Hazard Events and Maps,* April 27, 1999. This report is on file at the San Francisco Planning Department, 1660 Mission Street, in File No. 98.898E.

13 San Francisco Water Team, *Chloramine Conceptual Design Report*, 1999.

14 San Francisco Water Team, *Chloramine Conceptual Design Report*, 1999.

to develop the proposed building, increasing the potential for geotechnical hazards (including erosion). The EIR will further discuss the potential seismic and geotechnical hazards associated with this facility.

10) Water. Could the project:	Yes	No	Discussed
(a) Substantially degrade water quality, or contaminate a public water supply?	*To be determined*		
(b) Substantially degrade or deplete groundwater resources, or interfere substantially with groundwater recharge?	____	X	____
(c) Cause substantial flooding, erosion, or siltation?	*To be determined*		

Water Quality and Hydrology

Tesla Portal. The proposed chlorine storage and feed facility would be located on an undeveloped site, and it is anticipated that considerable grading would be needed. Construction of the proposed facility at this location would have the potential to degrade downstream surface water quality, and general stormwater pollution-control measures would need to be implemented. Long-term operation of the facility may result in water quality or hydrological impacts due to increases in impervious surfaces associated with proposed improvements. The EIR will examine the potential water quality and hydrological impacts that could result from construction-related activities associated with grading and long-term increases in impervious surfaces.

San Antonio Pump Station. The proposed ammonia and chlorine feed facility would be located in a floodplain area adjacent to the existing San Antonio Pump Station. Development of this facility would involve placement of a substantial amount of fill to raise the building pad above this floodplain area. Given the site's upstream location from Alameda Creek and proposed placement of fill, there would be potential for degradation of downstream surface water quality in Alameda Creek (e.g., siltation during construction and accidental release of chloraminated water during operation) and changes in drainage (i.e., downstream flood hazards). Proposed improvements at the Alameda East and West shafts are also located upstream of Alameda Creek. Therefore, the EIR will further discuss the potential for water quality and hydrologic impacts on Alameda Creek or any downstream uses.

Pulgas Water Temple. The proposed dechloramination facility would be located on a gently sloping hillside upstream of Crystal Springs Reservoir. Construction of the facility at this location would have the potential to degrade downstream surface water quality, and construction of several thousand linear feet of various pipelines and possibly a basin contactor system upstream of the reservoir would have the potential for sedimentation impacts. General stormwater pollution-control measures would need to be implemented. The EIR will examine the potential water quality and hydrological impacts that could result from construction-related activities associated with grading and other earthmoving activities.

Project operation would prevent discharge of chloraminated water into Crystal Springs Reservoir to protect aquatic resources and water quality. Although the dechloramination facility would remove chlorine and reduce ammonia levels, the resulting discharge to Crystal Springs Reservoir would contain

minor increases in ammonia at levels low enough to protect water quality. However, since ammonia at higher concentrations can be toxic to aquatic life and contribute to algal blooms, the EIR will discuss the potential effects associated with ammonia discharges into Crystal Springs Reservoir. In addition, in the event of upset and failure of the proposed dechloramination facility, there could be adverse effects on aquatic resources and water quality due to discharges into the reservoir. The EIR will further discuss potential operational water quality impacts on Crystal Springs Reservoir, including comparison of potential effects of chloraminated discharges with potential effects of chlorinated discharges. The EIR analysis will also examine potential conflicts with adopted and proposed water-protection policies of the Peninsula Watershed Management Plan.

Proposed reservoir upgrades at the Pulgas Balancing Reservoir would include interior piping modifications in the reservoir as well as construction of a buried chemical feed pipeline from the balancing reservoir, crossing under Cañada Road, to the proposed dechloramination facility. The EIR will examine the potential water quality and hydrological impacts that could result from construction-related activities associated with grading.

Harry W. Tracy WTP. The proposed ammonia feed facility would be located on a hillside adjacent to existing buildings and a paved parking lot. Substantial excavation would be required to develop the proposed building, increasing the potential for erosion; general stormwater pollution-control measures would need to be implemented. Project operation could result in the discharge of chlorinated or chloraminated backwash water into the San Andreas Reservoir. The EIR will further discuss potential construction-related erosion hazards and operational water quality impacts on San Andreas Reservoir.

Secondary Discharges. The proposed dechlorination facilities at secondary discharge locations would remove chlorine from chloraminated discharges to surface waters. This would be a beneficial impact to surface water quality compared to existing conditions, where chlorinated water (which is toxic to aquatic life) currently overflows or is incidentally discharged. However, the proposed project would result in minor increases in ammonia, which would not affect surface water quality at the anticipated concentrations, volumes, and pH levels. The potential water quality impacts associated with this minor increase in ammonia levels in secondary discharges will be discussed in more detail in the EIR. In addition, as discussed under the Hazards section, there is a potential that in the event of a facility failure or catastrophic event, chloraminated water could be discharged to surface waters at secondary discharge locations. Chloraminated water can be toxic to aquatic life, and depending on the concentration, volumes, and site conditions, chloraminated discharges could be a significant water quality impact. However, since under existing conditions, chlorinated water is being discharged at these locations, the EIR will compare the potential toxic effects of chlorinated discharges with the potential effects of chloraminated discharges in the event of an upset or system failure (see checklist item 8, Biology, for more discussion).

CDD System. The operational changes to the CDD system required prior to chloramine conversion include cleaning of all the reservoirs. This would entail drawdown of the reservoirs and removal of sediments or deposits in the reservoirs. The EIR will discuss disposal of discharges from reservoir cleaning operations. On a program level, improvements to some chemical feed systems at CDD facilities

would not be expected to result in water quality impacts, since all construction and operational activities would be limited in extent and associated with existing facilities.

BAWUA Member Agencies' Systems. Since the description and location of modifications to BAWUA member agencies' systems is currently unknown, the EIR will discuss program-level water quality impacts associated with general construction activities, potential for secondary discharge impacts (similar to that for the SFPUC system described above), and potential water quality issues associated with blending chloraminated water with other water sources.

Systemwide Discharges. The change in water quality associated with chloramine conversion of the drinking water supply would result in indirect, low-level changes in the water quality of wastewater discharges, combined sewer overflows (CSOs), and non-point source discharges to the Bay. However, as described below, these levels of chloramines would be negligible increases in ammonia and would not contribute to a RWQCB discharge limitation. Therefore, the chloramine conversion would be considered to have a less-than-significant water quality impact on wastewater, CSO and non-point source discharges, and this issue will not be discussed further in the EIR.

Levels of chloramine present in drinking water would be reduced following use by water customers through its reactions with substances in the water, and reduced levels would pass through to the wastewater system. The chloramines would eventually break down to form chlorine and ammonia, and the reactive chlorine portion would volatilize, leaving ammonia. However, wastewater contains a wide variety of chemicals, microorganisms, and other contaminants, including many other sources of ammonia, and ammonia originating from chloramines in drinking water would constitute only a fraction of chemicals in wastewater. Thus, while chloraminated drinking water typically contains levels of ammonia of about 0.3 to 0.5 milligrams per liter (mg/L), treated wastewater under dry weather conditions typically contains much higher levels, about 16 to 26 mg/L ammonia.[15] During wet weather conditions, the ammonia levels in wastewater discharges vary depending on rainfall but overall are lower than during dry weather conditions. Therefore, the maximum level of ammonia in wastewater that could be attributed to chloramine in drinking water would be less than two percent during dry weather and even less during wet weather. This percentage is within the typical range of variation of existing ammonia levels in wastewater discharges. Furthermore, the RWQCB has not imposed permit limitations on ammonia for wastewater discharges in San Francisco. Therefore, the impact of chloramine conversion to ammonia levels in wastewater discharges would be less-than-significant.

With respect to CSOs in San Francisco, the CSO discharges to the Bay consist of wastewater diluted by stormwater runoff, with the extent of dilution varying with the size of the rainstorms. The ammonia levels in CSOs vary depending on rainfall, but on average, the levels range from 4 to 10 mg/L ammonia or about one fourth to one third the concentration in wastewater discharges due to the dilution with stormwater. Therefore, the fraction of ammonia in CSO discharges attributable to chloramines in drinking water would be about half of one percent, and again, within the range of variation of existing

[15] Approximate effluent ammonia levels under dry weather conditions for City and County of San Francisco, Southeast and Oceanside Water Pollution Control Plants. Ammonia units expressed as milligrams per liter as nitrogen.

ammonia levels in CSO discharges. Therefore, the impact of chloramine conversion to ammonia levels in CSO discharges would be less-than-significant.

Non-point sources of direct discharges of chloraminated drinking water to the Bay would consist mainly of washing and flushing of piers or boats along the Bay shoreline using SFPUC water that drains directly to the Bay. These sources, however, would be sporadic in nature and of limited volume, occurring only in isolated areas along the Bay shoreline. Runoff from other parts of the City from hosing down driveways or car rinsing with SFPUC water would drain to the combined sewer system and would be discharged either as part of wastewater or CSO discharges discussed above. Since the toxicity of ammonia to aquatic organisms is dependent upon the pH, the impact of direct discharge to the Bay would depend on the pH of the Bay receiving waters. At the typical pH range of the Bay and at the typical concentration range of ammonia in chloraminated water, the toxic fraction of ammonia would be well below the levels considered harmful to aquatic life. Therefore, due to the relatively low volume and sporadic nature of these non-point source discharges and the low toxicity levels due to the pH of receiving waters, the impact of chloramine conversion to ammonia levels in non-point discharges would be less-than-significant.

Public Health and Water Supply

The EIR will discuss the effectiveness of chloramination for disinfection and for reduction of disinfection by-products in the SFPUC drinking water supply. The EIR will also discuss existing drinking water quality and proposed changes in water quality relative to federal and state primary and secondary drinking water standards and maximum contaminant levels. Project-related changes in water quality, if unmitigated, would have adverse impacts on kidney dialysis patients, and could have adverse impacts on aquarium owners and various other commercial and industrial users. The EIR will further discuss programs to notify the public and mitigate potential negative impacts on these users. Proposed chloramine conversion would also increase the net level of residual disinfectant in drinking water, and there may be noticeable changes in the taste and odor of drinking water. The conversion from chlorine to chloramine will potentially decrease the detectable chlorinous taste and odors in typical customer tap water. Thus, although chloramine conversion would result in minor changes in water quality, the EIR will further discuss how these changes would affect the general public.

11) Energy/Natural Resources. Could the project:	Yes	No	Discussed
(a) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?	____	X	X
(b) Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	____	X	X

Because there are no quantitative state or federal standards to indicate what is considered a "large amount" of fuel or energy, significant energy impacts are generally linked with projects that would require substantial energy consumption on an annual basis, or would use fuel or energy in a manner inconsistent with common energy conservation practices. A project may also be deemed to have a

significant effect if substantial changes in utility infrastructure would be needed to accommodate increased electricity and natural-gas demand.

Construction of the proposed project would consume direct energy in the form of fuel and electricity, and indirect energy as a result of the processes employed to make construction materials (e.g., mining and extraction of raw materials, manufacturing, etc.). Construction equipment, including excavators, haul trucks, and vehicles, are expected to consume the majority of the energy resources. Electricity would be used by construction equipment, such as welding machines and power tools.

The energy consumed during project construction would constitute a one-time impact and would not place an ongoing demand on energy resources. Since construction activities would primarily consume energy in the form of fuel, there would be little effect on Pacific Gas and Electric Company (PG&E) and Hetch Hetchy Water and Power energy resources. Energy consumption associated with construction activities, therefore, would result in a less-than-significant impact.

Under operating conditions, project facilities would include regular deliveries of chemicals, pumping equipment, and space heating and air conditioning equipment. The amount of fuel needed for deliveries, the energy needed to operate pumps associated with new chemical feed systems and increased reservoir mixing, and the energy required for space heating and air conditioning in new facilities would not be substantial. The increased number of chemical deliveries would not substantially increase fuel consumption (see checklist item 4, Transportation/Circulation). In addition, most pumps associated with new facilities would be less than 1 horsepower in size. Increased space heating and air conditioning requirements of new facilities would also be limited by the small size of each facility. Substantial upgrades to PG&E's electrical system are not expected to be required. Therefore, energy consumption associated with operational activities would result in a less-than-significant impact.

12) Hazards. Could the project:	Yes	No	Discussed
(a) Create a potential public health hazard or involve the use, production, or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?			*To be determined*
(b) Interfere with emergency response plans or emergency evacuation plans?			*To be determined*
(c) Create a potentially substantial fire hazard?			*To be determined*

Development of proposed facilities at the four main facility locations (Tesla Portal, San Antonio Pump Station, Pulgas Water Temple, and Harry W. Tracy WTP) would increase the number of chemical deliveries and the amount and types of water treatment chemicals stored and used at each of these locations. The EIR will further discuss: (1) the potential to encounter hazardous materials in subsurface materials during project construction; (2) proposed use and storage of treatment chemicals; (3) proposed chemical handling, storage, and transport procedures; (4) potential public health effects associated with transport, storage, and handling of chemicals; (5) potential for accidental releases of treatment chemicals

and associated impacts during normal operations and seismic events; (6) the potential to encounter hazardous building materials; and (7) the potential to interfere with emergency response plans.

Secondary Discharges. The project would not alter existing locations of planned discharges or incidental overflows, but would change the content of discharges from chlorinated water to chloraminated water and would involve operation of dechlorination facilities. The permanent or temporary use of chemicals for dechlorination at these sites will be discussed on a program level in the EIR. Accidental discharges of chlorinated or chloraminated water could also occur in the event of a catastrophic failure of water facilities due to a major earthquake event. The potential for such accidental discharges already exists, and this potential would not be increased by the proposed project. However, any accidental discharges would change from chlorinated water to chloraminated water. Potential impacts of such discharges would be similar to those associated with other secondary discharges and would primarily relate to water quality and aquatic resources (see checklist items 8 and 10, Biology and Water Quality, for more discussion).

13) Cultural. Could the project:	Yes	No	Discussed
(a) Disrupt or adversely affect a prehistoric or historic archaeological site, or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site, except as a part of a scientific study?			*To be determined*
(b) Conflict with established recreational, educational, religious, or scientific uses of the area?			*"No" at Tesla and Tracy WTP; to be determined at other facility locations*
(c) Conflict with the preservation of buildings subject to the Provisions of Article 10 or Article 11 of the Planning Code?	_____	n/a	_____

Tesla Portal. The proposed chlorine storage and feed facility would be located adjacent to existing water facilities, and one existing structure is proposed for demolition. The EIR will address the existence of or potential for archaeological or historic resources at this site and the potential for cultural resource impacts.

San Antonio Pump Station. The proposed ammonia and chlorine feed facility would be located adjacent to the existing San Antonio Pump Station. The EIR will address the existence of or potential for archaeological or historic resources in areas surrounding this site as well as the Alameda East and West shafts. In addition, the EIR will identify any established recreational uses in the vicinity of this site.

Pulgas Water Temple. The proposed dechloramination facility would be located adjacent to the Pulgas Water Temple. California State Landmark No. 92, the Portola Expedition Camp of November 11, 1769, is located at the Pulgas Water Temple. The Pulgas Water Temple, which is part of the San Francisco Water System, is a California Historic Civil Engineering Landmark and is on the *California Inventory of Historic Resources* under the theme of architecture. It is also listed on the *64 Geologic, Scenic, and Historic Points of Interest in San Mateo County, California* and is on the *Historic Sites Master List for San Mateo County.* Despite these listings, the temple is not listed on the *California Register of*

Historical Resources and has not been evaluated or determined eligible for listing on the *National Register of Historic Places*. The EIR will determine whether the historic Pulgas Water Temple and adjacent areas would be adversely affected by project construction and operation. In addition, the EIR will address the existence of or potential for archaeological or historic resources in the vicinity of this site and will identify any established recreational uses.

Harry W. Tracy WTP. The proposed ammonia feed system would be located adjacent to the existing WTP buildings and a paved parking lot. The EIR will address the existence of or potential for archaeological or historic resources in the vicinity of this site and will identify any established recreational uses.

C. OTHER

Could the project:	Yes	No	Discussed
(a) Require approval and/or permits from city departments other than the Planning Department or Department of Building Inspection, or from regional, state, or federal agencies?			*To be determined*

The four main facility locations are within the counties of San Mateo, Alameda, and San Joaquin, entirely on property owned by the City and County of San Francisco. The CDD system is located entirely on property owned by and within the City and County of San Francisco. BAWUA agencies' facilities are located within Alameda, San Mateo, and Santa Clara counties. Although proposed facilities are located in these counties, local building and zoning ordinances would not apply to project facilities, pursuant to California Government Code, 53090 et seq.

Depending on the resources encountered at the four main facility locations, construction and operation of the proposed project may require permits/approvals from the following agencies:

- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- U.S. Army Corps of Engineers
- California Regional Water Quality Control Board (Stormwater Pollution Prevention Plan)

D. MITIGATION MEASURES

	Yes	No	Discussed
(1) Could the project have significant effects if mitigation measures are not included in the project?	X	___	X
(2) Are all mitigation measures necessary to eliminate significant effects included in the project?	X	___	X

The following mitigation measures relate to environmental effects determined to require no further analysis in the EIR. The EIR will contain a mitigation chapter describing the measures, which are proposed as part of the project, and will include other measures which would be, or could be, adopted to reduce potential adverse effects of the project.

Mitigation Measure 1 – Construction Air Quality

The following measures for mitigating emissions of air pollutants during project construction, required by the Bay Area Air Quality Management District, will be incorporated into the proposed project as construction specifications. These basic and enhanced control measures for construction emissions of fine particulate matter would be implemented as necessary depending on weather conditions:

1. Water all active construction sites at least twice daily, and more often on days when winds exceed 10 to 15 miles per hour.
2. Cover all trucks hauling soil, sand, and other loose materials *or* maintain at least 2 feet of freeboard in trucks hauling such materials.
3. Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
4. Using water sweepers, sweep all paved access roads, parking areas, and staging areas at construction sites on a daily basis.
5. Using water sweepers, sweep streets adjacent to construction sites daily if visible soil material is carried onto adjacent public streets.

For construction areas involving disturbance of more than four acres, the following enhanced control measures will be implemented:

6. Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).
7. Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
8. Limit traffic speeds on unpaved roads to 15 miles per hour.
9. Install sandbags or other erosion-control measures to prevent silt runoff to public roadways.
10. Replant vegetation in disturbed areas as quickly as possible.

Mitigation Measure 2 – Construction Utilities/Public Services

The following measures will be incorporated into the proposed project to reduce the potential for service disruptions during project construction:

1. The SFPUC will coordinate its planning and design efforts with other utilities, including identification of utility line locations, early consultation with affected utilities, and avoidance of affected utility lines. If avoidance is not possible and relocation of any existing utilities is required, the SFPUC and affected agency will mutually arrange for the movement of the facility prior to construction of the proposed project.

2. To minimize delays in emergency response during project construction, all potentially affected police, fire protection and ambulance services shall be notified in advance of the times, duration and location of construction activities throughout the project's construction process. This measure shall be included in construction specifications.

E. ALTERNATIVES CONSIDERED

As previously discussed under the project background and overview sections, the SFPUC has conducted extensive studies on the SFPUC water supply system related to improving reliability and to meeting recent and anticipated water quality regulations. These studies identified and evaluated a comprehensive range of alternative treatment methods and facilities needed for improvements related to disinfection, corrosion control, ozonation, and filtration processes.[16] Chloramine conversion is only one aspect of the overall Hetch Hetchy Water Treatment Project, and conversion to chloramine was determined to be the only treatment method that could reliably meet the requirements of the Stage 1 Disinfectant/Disinfection By-Products Rule. Thus, other treatment alternatives evaluated in the preliminary engineering report, including the No Project Alternative, would not achieve the objectives of the SFPUC Chloramine Conversion project.

The conceptual engineering study for the SFPUC Chloramine Conversion project examined alternative facility sites and combinations of facility sites that would achieve the water quality objectives of the proposed project. There were 11 potential sites identified for chloramination or dechloramination facilities as follows: Moccasin Reservoir, Rock River, Oakdale Portal, Oakdale Shaft, Albers Road Valve House, San Joaquin Valve House, Red Mountain Bar, Tesla Portal, San Antonio Pump Station, Alameda West Shaft, and Pulgas Water Temple area. Various combinations of facilities at these sites were evaluated for the ability to meet project objectives. However, due to the layout of the SFPUC water supply system, construction of facilities at any of the alternative locations would require new facilities at Tesla Portal, Sunol Valley area, and Pulgas Water Temple area as well. For the Pulgas area in particular, there are no alternative locations for a dechloramination facility, since this process must occur in the immediate vicinity of the discharge to Crystal Springs Reservoir. Therefore, all engineering alternative sites east of Tesla Portal were eliminated from further consideration in the EIR, since those alternative combinations would result in disturbance of additional sites and in greater environmental impacts compared to the preferred alternative.

For the EIR, alternatives to the proposed project will be developed based on the same basic conceptual engineering plans for the preferred alternative. These alternatives would consist of minor variants of the preferred alternative, such as changes in footprint or site layout, that may be required to mitigate any negative impacts should they become known during the EIR analysis. The No Project Alternative will also be analyzed in the EIR.

16 San Francisco Water Team, *Hetch Hetchy Water Treatment Project Phase 1A Preliminary Engineering Report*, prepared for the San Francisco Public Utilities Commission, August 1996.

F. MANDATORY FINDINGS OF SIGNIFICANCE

	Yes	No	Discussed
1) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	X		
Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?		X	
Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	*To be determined*		
2) Would the project cause substantial adverse effects on human beings, either directly or indirectly?	*To be determined*		

G. ON THE BASIS OF THIS INITIAL STUDY

___ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Planning Department.

___ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers _____, in this discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared by the Planning Department.

X I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date

HILLARY E. GITELMAN
Environmental Review Officer
for
GERALD G. GREEN
Director of Planning
Planning Department